‘The Phenomenalisation of Heritage:

Digital interactions through mobile devices with tangible and intangible heritage’

Submitted by William David Paul Barrett to the University of Exeter
as a thesis for the degree of
Doctor of Philosophy in English
In September 2018

I certify that all material in this thesis which is not my own work has been identified and that no material has previously been submitted and approved for the award of a degree by this or any other University.

Signature: ……..

Abstract.

Within the ever developing field of digital heritage, mobile technology has enabled museums, and other cultural heritage institutions, to create platforms and activities that not only extend the reach and depth of their collections, but also their nature. Through the digital mapping of both tangible and intangible heritage, items become phenomena through a process of engagement and interpretation that not only re-models the role of the artefact in question, but also the perception of its meaning and the reframing of the contexts from which they, and we as users, come from. The result of this process is defined by this work as the phenomenalisation of heritage, and this thesis charts how this philosophical theory has emerged within the contemporary landscape of museology, as well as how it may be employed by heritage practitioners in creating a coherent structure for the development of mobile-driven activities that align with the participatory paradigm of museum practices. As a result, the chapters that follow here look at the evolution of the museum, the expansion of museum territory through the use of mobile technology, and the nature and impact of this process on users experiences, learning, and curation. Drawing from studies in museology, human computer interaction (HCI), and phenomenology, this thesis provides a philosophical analysis of the development and use of mobile technology in the wild outside of the traditional walls of the museum. Furthermore, through an empirical and embedded approach to research, the thesis also presents auto-ethnographic and ethnomethodological case studies in order to show evidence that this model of digital heritage produces both personal and shared interpretations of heritage phenomena through metaphorical excavation and co-curation.

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Acknowledgements

My sincere and grateful thanks go to everyone I have engaged with during the course of producing this thesis. While, given the exploratory nature of the work presented here, it is not possible to mention all by name, I must give a broad doff of the cap to all the heritage professionals, creative technologists, and case study participants, each of whom have created and explored the rich digital heritage landscape from which my work has emerged.

Direct thanks must go to my wife, my family, and my friends, who, as individuals and as a group, have provided me with great support, constructively challenging conversations, and countless moments of much needed levity. How blessed I am to know you all.

My sincere thanks also go to the Arts and Humanities Research Council (AHRC), REACT (Research and Enterprise in Arts and Creative Technologies) and the Royal Albert Memorial Museum & Art Gallery, Exeter (RAMM), for the funding that has allowed me to pursue this research, as well as for creating and facilitating stimulating environments for me to work in.

To Rick Lawrence, Andy Chapman, and all of my colleagues at RAMM and 1010 Media, I have enjoyed each and every moment working with each and every one you, and am grateful for the constant reminder that museums are incredible places, filled with treasures that go beyond the items that we put on display.

To Exeter City Football Club, in particular Paul Farley, Martin Weiler, and all the staff and volunteers at St James Park, thank you for opening up the club and your archives to me and my colleagues. What a wonderful journey we have been on, and here's to celebrating our past as we move towards an even more celebrated future.

To all of the staff at the University of Exeter, my gratitude for your support will endure well beyond the years I spend on the hallowed turf of the Stretham Campus. I am truly appreciative of the time and effort invested in me by all of the humanities research staff, in particular Professor Joe Kember who has been the most perfect second supervisor I could have hoped for.

Last but not least, my eternal thanks goes to my (seemingly indefatigable) senior supervisor, Professor Gabriella Giannachi. Her insight, intelligence, drive, and patience, have been greatly appreciated and valued, as have the opportunities that she has created for me. Thanks for giving me a shot at achieving a dream.

Images:

Introduction.

The development and increasingly widespread adoption of digital technology in the 21st century has had a significant impact on the way in which society accesses and consumes information in the creation of new knowledge, and this paradigmatic shift has had a particular influence on approaches to cultural heritage. In the early days of digitization projects the primary objective was to make materials more accessible to users, and by creating and hosting digital collections online, cultural and academic institutions were able to dramatically expand their audience and facilitate the usage of unique primary resources, particularly special collections material (Baggett & Gibbs 2014, 11-12). In recent years the digital heritage landscape has broadened in its scope, both from a practical perspective as well as an academic one. It still remains, particularly in technologically-advanced regions of the world, that any user of historic information can access millions of uploaded records, blogs, videos, books, articles, images, files, animations, audio files and sundry other materials (De Groot 2016, 91). However, models of digital adoption continue to develop and evolve in order to create meaningful representations and interpretations and experiences of cultural heritage.

While this is to be commended, particularly at a time when museums strive to remain engaging and relevant to a society with unprecedented access to digital information and activities, the focus now needs to shift from an appreciation of technology, towards creating 'strong synergies between the physical, online, and mobile experiences, while understanding how audiences are interacting, behaving, and learning across these three spheres' (Kelly

2016). Therefore this thesis seeks to contribute an original understanding of how smartphones have been employed in the cultural heritage sector in creating engaging experiences with both tangible and intangible heritage. In doing so this thesis presents the term phenomenalisation, which in simple terms refers to the process of creating meaning through digitally-mediated encounters with contextualised heritage phenomena, and the co-curation of new narratives that may contribute to a broader understanding of both a personal and shared cultural heritage.

A further explanation of this term is provided here, by looking at the word from an etymological perspective. Breaking the word into two parts, the first element of the word is phenomenal, acknowledging also the terms phenomena (plural) and phenomenon (singular) (OED 2012). The definition of phenomenal is something that is perceptible by the senses or through immediate experience (Ibid), while, in philosophy, phenomena are the object of a person's perception (Wells 2015). The second element of the word is 'isation', which as a suffix forms nouns denoting the act, process, or result of doing something, or of making something (OED 2012).

As a whole, the word phenomenalisation, as it is formulated by this thesis, describes the outcome of the process of transforming museum collections into digital form, which, when presented by smartphones alongside geo-located narratives and curatorial-driven affordances, encourage users to explore and interpret the multiple meanings associated with any given phenomenon or artefact. Drawing from approaches in museum interpretation, constructivist

learning theory, phenomenology as an interpretive method, and participatory practices in contemporary museum practices and academic study, this thesis charts the emergence of the proposed paradigm, which reaches beyond the walls of cultural heritage institutions and creates direct and meaningful encounters with heritage in our everyday lives.

In establishing the background for this thesis, over the past ten years I have worked in the cultural heritage sector, both as a researcher and practitioner. These roles have included a wide variety of tasks including, amongst others, desk-based research, archaeological investigations, and working with museums and other cultural heritage organisations in curating engaging experiences for their audiences. Post-processual archaeology, in particular the practice of phenomenology as a deductive method of interpreting historic landscapes, has always resonated with my approach to heritage, and so this has led to producing my perception of how various forms of tangible and intangible heritage can be interpreted to give meaning to these items, as well as the world in which they are digitally placed. Over this time one significant, if not fairly obvious, observation has been that with each assignment, and each task, two core practices have emerged as a constant presence: exploring the multiple narratives of the past that can be attributed to any given artefact, and the use of ever evolving technology.

In this thesis the aim is to bring together these two practices in order to present, and investigate, a paradigm of engagement that is relevant to the exploration and evolution of heritage phenomena in this era of rapidly

advancing, and increasingly malleable, technology. While it is not the aim of this thesis to look at the full range of platforms and devices available, or in many cases not yet available, to heritage professionals, it is my hope that the narrative presented in the following chapters and pages will go someway to helping readers to consider the adoption and assessment of digital technologies from new perspectives. In doing so I am cautiously aware that 'technology does not stand still - what is revolutionary one day is obsolete the next' (Baggett & Gibbs 2014, 11-12), and so this thesis aims to look not only at particular elements of technology in the digital age, but also to investigate themes and methods that may remain at the heart of digital engagement with heritage content as methods of digital delivery and engagement in the future.

The specific focus in this work will be to demonstrate the way in which personal digital devices are reshaping the definition of a museum, and to create and investigate a framework through which we can achieve a greater understanding of how users respond to digital heritage, both in locations contextual to the digital artefacts on display, as well as within the context of their everyday lives, and personal understanding and interpretations of the past through the production of new knowledge and narratives in relation to cultural heritage phenomena.

Recognising that digital platforms are tools for heritage engagement, the central tool for the purpose of this thesis is the mobile smartphone. For some time now we have been able to understand that mobile devices are also geo-spatially aware computers capable of supporting research, communication

and collaboration challenges us to think beyond the audio tour and our silo-like approaches to digital initiatives (Proctor 2011, 9). From a historical perspective the first mobile heritage experiences were tours. Beginning with the Stedelijk Museum's radio tours in the 1950s, mobile engagement with heritage developed through the audiocassette tour, the CD tour, the PDA tour, and through to the mobile phone-based tour. Over this time the content transformed from analog to digital, and pictures and video were added to the narration, although Ed Rodley argues that 'they follow the same model: the visitor goes from location to location and receives content at stops' (2012, 60). In developing this thesis it will be demonstrated that while the traditional mobile tour is still in effect, in the world outside the museum these trails have been adopted in a number of different ways, and in doing so have used a range of interactive and participatory methods of cultural heritage engagement.

Mobile technologies are enabling users to participate, spontaneously and continuously, in activities of collection, preservation and interpretation of digitized heritage content and new digitally mediated forms of heritage practice (Giaccardi 2012, 2). What will be seen in this thesis is that mobile technology allows museums, and other custodians of cultural heritage, to utilise platforms and create activities that not only extend the reach and depth of their collections but also their nature. Digital heritage comes in many forms, and may include digitised artefacts, images, audio and film. For the purposes of this thesis these items will be classed uniformly as phenomena, and this thesis will explore the expansion of museum territory through the use of

mobile technology in displaying heritage phenomena at nodes of engagement. Furthermore it will be shown that this process not only remodels what it is to be an artefact, but also the perception of their meaning through the reframing of the contexts from which both they, and we as users, come from.

This thesis is not an attempt to advocate the production of mapping apps in cultural heritage. Rather it aims to understand and classify how these platforms have been adopted in order to extend the physical boundaries of cultural heritage organisations, and to elucidate their value, not in monetary terms or usage numbers, but in relation to meaningful and productive experiences. What we are specifically looking at in this work is how personal mobile devices reverse the traditional paradigm of collecting phenomena from the outside world at large, by generating an interactive landscape of heritage phenomena in the world outside of the traditional space of the museum. This approach leads to hybrid encounters where representations of the past meet with the present, leading to the phenomenological experience of historic and contemporary lifeworld of the user, and the creation of personal interpretations of heritage phenomena, as well as providing curatorial opportunities that align with the participatory paradigm of museology.

Through interdisciplinary research that draws from museology, human computer interaction (HCI), phenomenology and post-processual archaeology, this thesis will provide a unique take on the development and assessment of mobile encounters in the cultural heritage sector by taking a

philosophical approach to the analysis of smartphones in the heritage sector. While research by Emmanuel Monod and Heinz Klein (2005) have provided a phenomenological framework of evaluation for the use of mobile devices within the museum setting, this thesis is the first to look at, and to categorize, the emergent digital landscape outside the traditional walls of the museum. While this third space of engagement has previously been discussed many times in relation to the Internet, I look at this digital landscape in more tangible terms by exploring the use of smartphones in everyday environments, whilst reading mobile phenomena through a philosophical lens.

Methodology.

Having briefly introduced the main concepts of the thesis, I now look to outline how the chapters that follow this introduction have been approached and delivered. In investigating the evolution of the museum and the adoption of smartphone devices across the UK, this thesis benefitted from an embedded research methodology by working with a number of cultural heritage and technology partners including the Royal Albert Memorial Museum and Art Gallery (RAMM), Exeter City Football Club, and 1010 Media. The term embedded researcher emerged as ‘a conceptual and practical label to help understand how we were under-taking research for our doctorates’ (McGinty et.al. 2014, 3). As such, embedded research can be described as ‘a mutually beneficial relationship between academics and their host organizations whether they are public, private or third sector’ (*Ibid*). In the case of this research, this process allowed me as a researcher to gain access to the skills, resources, and knowledge of the above named cultural partners in developing

number of the mobile mapping applications (Mapps) for the elaboration of this thesis, including *Exeter Time Trail*, *Moor Stories*, and *Placeify*.

The work conducted with RAMM and ECFC were central to the design of the thesis. RAMM is a well-established museum, with a clear mission and core values. Working with staff at the museum brought a blend of digital and curatorial experience to the process, which allied with the aims of this study and served to produce content that not only matched the aims and objectives of the cultural partner but also my own. Looking at this more specifically, the production of content was designed in order to meet the values of the museum as a service of Exeter City Council that exists to enrich the lives of people living, working in and visiting Exeter by providing them with opportunities to be inspired, informed and entertained (RAMM 2018). As such digitally mapping heritage phenomena from their collections around the centre of Exeter was not only of use to this study, but also served to broaden the boundaries of the museum in relation to the museum's values. This process also provided my research with access to their extensive museum collections, which afforded opportunities to create case studies that could draw from a mixed range of phenomena, rather than from particular typologies of artefacts.

At the beginning of the research process the other major partner for my embedded research, ECFC, did not have a set agenda for its cultural heritage mission. However, the football club has been a key part of its local community for more than a century, having been established in 1901 as St Sidwell's United, and the artefacts that the club hold are second only to the broad range

of narratives that can be attributed to it through historical enquiry and engagement with its fan-base. Throughout the research process both institutions provided valuable resources for the creation of case study content, as well as providing access to case study participants. Furthermore, this juxtaposition of an established museum alongside a football club that was developing its heritage practices provided the perfect opportunity to evaluate the development and use of Mapps within contrasting organisations with a cultural heritage agenda. My personal agenda, within the process of embedded research, was to work within the evolving missions of each organisation, whilst also serving to provide research and analysis for the further development of digital content, and to instigate and support their participatory practices. Additionally my work with ECFC evolved over the course of the research, and alongside colleagues from the University of Exeter, I have worked with the club to determine its mission, which utilises the principles of phenomenalisation in the production of new narratives, and the establishment of an official ECFC Museum, which will be launched in 2019.

Within this practical agenda, the primary research interest for this development of this thesis lies in the distribution of heritage phenomena via smartphone devices, and how users are encouraged to respond to them. The rationale for the selection of Mapps for this study lay in the selection of Mapps that used mixed phenomena in the presentation of its narratives, as well as a focus on the local area of the cultural producer. Thus examples excluded include those of art museums such as the Tate's *Art Maps*, which uses similar methods in digitally locating its vast collections across the globe, while

gathering information about the artworks displayed from the public through digital means. Returning to the phenomena at the heart of this study, it is know that ‘objects lie in the heart of every exhibition and visitors are well aware of that’ (Damala 2007, 278), yet what is less understood is how users respond to these objects in contextual locations, based upon their own personal thoughts, emotions, and prior knowledge. In the case of the work presented here these objects are manifested in the form of heritage phenomena, made up of a variety of archival and everyday materials including artefacts, images, film, and audio recordings.

It is known that visitors to museums respond actively, though many times randomly, to exhibits and objects and often try to relate what they see with their own experience (Damala 2007, 278). This plurality of engagement is something that we are aware of in cultural heritage, particularly amongst museum audience, but what is less known is how people respond to heritage in the everyday, where, as individuals, our trajectories’ of experience manifest in a myriad of ways. Furthermore, ‘what a museum object means depends, at least partially, on the viewer’ (Latham 2009, 4), and so the purpose of this thesis is to draw on a blend of auto-ethnography and ethnomethodology to elucidate and examine how users respond to digital content through the interactive affordances provided by various Mapps, allowing for subjectivity, and emotionality, while recognising that there are a myriad of ways of communicating, valuing, and believing, when it comes to interpretations of cultural heritage.

In exploring the Mapps chosen for this thesis, the methods presented in the investigative chapters each begin with an auto-ethnographic account of my own personal experience of engaging with heritage phenomena via the *Walkabout St Ives* and *Historypin* Mapps respectively. In basic terms auto-ethnography is an approach to research based writing that seeks to describe and analyze (*graphy*) personal experience (*auto*) in order to understand cultural experience (*ethno*) (Ellis 2004; Holman Jones 2005). The approach, utilised in the context of this thesis, seeks to provide a descriptive analysis of the way in which encounters with heritage phenomena, as a result of Mapps, create narrative accounts of both the act of following the Mapp itself, as well as to elucidate the act of interpretation, and the creation of personal meaning.

Through employing the auto-ethnographic approach I was able to explore and analyse 119 Mapps from a first hand perspective that employed phenomenological approaches to research and heritage interpretation. Furthermore, this approach served to identify the key characteristics of Mapps and formulate the hypotheses to be tested in the investigative chapters. What must be recognised is the very nature of phenomenalisation is subjective to each individual, and therefore this made it vital to test a range of different Mapps with a broader user group made up of participant's who volunteered for the research through first hand contact with the author, and through advertising online.

The user group case studies in each chapter follow an ethnomethodological methodology, which involves the description and analysis of users 'situated

practices and interactions, in order to explicate people's ethno-methods' (Tolmie et.al. 2014, 1050). Founded as a field of research by the American sociologist Harold Garfinkel, in the 1960s, ethnomethodology can broadly be described as the study of the practical methods through which members of a particular societal group accomplish social organization and generate social order. The term can usefully be broken down as *ethno*, a social or cultural group, whether as small as a family business or as large as an entire nation-state, and *methodology,* which is the methods or procedures that competent members of that group use to go about their social life (such as the 'methods' used to form an orderly queue) (Whittle and Wilson 2015, 4).

According to Peter Tolmie, '*Ethno-methods* refer to the practical, situated exercise of common sense such that people's activities can be seen to be accountable, organized and recognisable local instantiations of social order' (Ibid). In developing this concept towards unpacking how the experience and reasoning of the case study participants was made manifest through their situated interactions with mobile driven encounters with heritage phenomena, this work aims to become part of what Tolmie et.al. describe as 'a growing trajectory of ethnomethodological studies of cultural sites' (2014, 1051), by highlighting how various forms of interactive affordance generate meaningful encounters with heritage phenomena at various locations outside of the traditional walls of the museum. Furthermore, the adoption of the ethnomethodological approach serves to provide additional analyses of Mapps, to work alongside the findings of the auto-ethnographical approach.

In producing these case studies I accompanied each participant, as individuals or as a group, occasionally asking them about their experiences when prompted by their movements or reactions, and following up each exercise with short semi-structured interviews and analysis of any published content that was produced during the exercise. While the presence of a researcher in this context is bound to have an influence on the actions and responses of participants, the method was an unobtrusive as possible, and served to provide a first hand analysis of Mapp use for this study. Furthermore, in juxtaposing these empirical methods with the embedded research and development process, what emerges is a novel approach that serves to provide this thesis with an honest and detailed view of my findings.

While wayfinding apps are just one of a suite of digital offerings that can be considered by museums and other institutions with an interest in sharing and learning more about their cultural heritage, these Mapps are one of the primary ways in which connections can be made between these institutions, their audiences, and the world that surrounds them in the everyday. By evaluating this process in the wild outside the walls of the museum, or a football stadium, this thesis is able to follow this methodology in examining how users respond to heritage phenomena, and how we might be able to further develop this process, or transpose it to other contexts in the pursuit of collecting, interpreting, and sharing narratives and representations of cultural heritage.

Thesis Structure.

This thesis seeks to examine the museological, societal, and technological context, in which smartphone applications are developed and used, as well as to investigate the mobile heritage landscape that has developed over the past decade. In doing so chapter one discusses the evolution of the modern museum, and the role of phenomena and technology in shaping perceptions of heritage and attitudes to learning. Chapter two goes on to outline how smartphones have played an important role in expanding both the physical boundaries of the museum in the production of phenomenological encounters with heritage phenomena, and how phenomenology is a valuable methodology in both creating and evaluating mobile heritage experiences. Chapter three then seeks to examine the extent to which heritage phenomena has been digitally mapped by cultural heritage institutions across the UK over the past decade, before outlining a framework for the design and analysis of Mapps.

The final two chapters consist of case studies, each of which looks at one of the specific taxonomic categories that emerge from the preceding chapter. Chapter four focuses upon interactive Mapps, including *Walkabout St Ives*, *Street Museum*, and *RAMM Time Trail*, in order to investigate how these experiences generate meaning-making in relation to locative representations of heritage phenomena. Chapter five then turns its attention to curatorial Mapps, such as *Historypin*, *Moor Stories*, and *Placeify*, in order to show how smartphone driven digital heritage encounters can lead to the co-creation of new narratives and representations of digital heritage phenomena. The

conclusion of this thesis then seeks to draw together the key strands of each chapter to form a coherent understanding of the nature of phenomenalisation for its application in the future.

Chapter 1: Heritage Phenomena and the Modern Museum.

Chapter one outlines how attitudes and practices in cultural heritage has been influenced by the technological developments of the age, as well as a range of theoretical and practical perspectives related to digital interaction with heritage. The aim here is to introduce the emergent and contemporary museum landscape in which the theory of phenomenalisation is placed, by outlining the wider context of heritage studies and museum practices, and exploring various thematic elements that have influenced the development of this thesis including constructivist approaches to learning, the rise of new media, and the emergence of the digital heritage paradigm in museum and heritage studies. A significant element of this chapter is the participatory paradigm of cultural heritage engagement, which recognises that museums and cultural heritage institutions are now less about transmitting a singular representation of the past, and more about involving their visitors in exploring and producing multiple meanings and scenarios for any given item or exhibit.

Chapter 2: The Growth of Mobiles and the Value of Phenomenology.

Building upon the work of the previous chapter, which recognises that heritage surrounds us all in our everyday lives, this part of the thesis seeks to outline the relationship between two of the core elements of

phenomenalisation - mobility and phenomenology. In charting the rise of smartphones, both as a readily available device, as well as a tool to engage with heritage in the everyday, this chapter outlines the realisation of the 'museum without walls', a term first introduced by André Malraux in 1953. This chapter argues that smartphones provide the ideal platform to generate not only digital replicas of heritage phenomena, but also create stimulating scenarios that allow users to engage with heritage content and themes outside the traditional confines of the museum.

Furthermore, this chapter demonstrates that the mobilisation of heritage correlates well with phenomenology as a course of developing engagement, interaction and interpretation. It is demonstrated here that phenomenology places individuals and their experiences, thoughts and perceptions at the heart of interpretation and meaning-making; a process that is fundamental in developing frameworks for digital interaction that go beyond button pressing, toward activities that draw on the minds and bodies of participants in the process of engaging with heritage phenomena.

Chapter 3: Mobile Mapping Apps (Mapps): Exploration, Taxonomy and Framework.

While the first two chapters investigate the impact of digital technology in the cultural heritage sector, this chapter provides a bridge towards the final chapters of the thesis, which contain case studies related to mobile heritage activities. In forming that connection, this chapter takes an innovative approach to the understanding of mobile heritage through the presentation of

a nationwide survey, which includes a survey of cultural heritage apps for mobile smartphones in the UK between 2010-2015. This survey is then ordered into a taxonomy of mobile apps, which identifies the core elements that define the use of mobile technology in relation to cultural heritage, as well as to provide a clear identification of the methods of interaction used in order to generate meaningful encounters with heritage through the mobile mapping of heritage phenomena, which this thesis terms as Mapps.

By illustrating the key behaviors of Mapps across the UK, this taxonomy then feeds into the development of a framework for cultural heritage app design. Recognising that Mapps generate user experiences that resonate with phenomenological approaches to heritage engagement, the framework serves to formulate the hypothesis that believes that Mapps help users to actively explore heritage phenomena in contextual environments, in order to foster constructivist-driven interpretive activities that have the potential to lead to knowledge creation and the production of new content and narratives.

Chapter 4. Investigating User Engagement with Interactive Mapps.

Having outlined the existing landscape of mobile heritage in the previous chapter, as well as a framework for Mapp design for cultural heritage, this chapter focuses upon those Mapps defined in the taxonomy as interactive. The key purposes of this chapter are to explore the nature of interactivity through affordance (Norman 1988, Gaver 1991), as presented to the user through a range of interactive delivery and interpretive methods, as well as to demonstrate the aspects of digital and metaphorical excavation that, this

thesis argues, derives from engaging with such practices. Following the methodology of the thesis, this chapter explores, both literally and metaphorically, a cross section of the smartphone-driven digital heritage landscape of the UK. In doing so this chapter shows that heritage is made up of intrinsically related and interlinking phenomena, as evidenced through the production of trails that users follow and to connect nodes of engagement charged with heritage related information, images and audible content. Through investigating user experiences of these trails, this chapter demonstrates that Mapps use the affordances of locative smartphone technologies to transform everyday mobility toward an embodied experience that draws each user's intentionality towards heritage phenomena and their contextual environments, allowing users make sense of the material presented in order to create new narratives based on factors such as perception, emotion, and personal experience or memory.

Chapter 5. Investigating Co-Curation through Curatorial Mapps.

The second investigative chapter of this thesis focuses on Curatorial Mapps, which allow users to capture and contribute their own representations of digital heritage phenomena, as well as to add to the historic record either through memory or interpretation. In doing so, this chapter illustrates how phenomenalisation emerges from a trajectory of digitally mediated interactive encounters with heritage phenomena, towards the creation of new knowledge and the sharing of new narratives through co-curation. This process illuminates how through digital technology and participatory media, cultural

heritage institutions are able to move their communicative strategies from one-to-many transmissions towards a many-to-many interaction, in which museums may utilise their own voice and authority to encourage participatory communication and content creation with visitors.

Through these activities, users, in their various roles, engage in disseminating their own representations of phenomena through text, audio, video or photography. Not only does this result in scenarios where people create and share heritage phenomena for interactive and immersive engagements, but it also contributes to a form of collective heritage, whereby the memories, interpretation and knowledge of individuals, and groups, can come together to form a community-generated representation of heritage. The result of this process represents the fullest extent of phenomenalisation whereby Mapps have been created to share digital phenomena in contextual locations, in order to foster embodied engagement, as well as the sharing of interpretations and information to foster new knowledge.

Conclusion.

In this introduction to the thesis, I have described the concept of phenomenalisation by providing an explanation of the meaning of the term, as well as outlining the background from which it has emerged. At the heart of this research is the creation of engaging experiences that result in participatory dialogues of interpretation, which are based as much on the experiences and interpretation of the user than raw historically related information or facts. What is proposed is that mobile encounters with digital

heritage phenomena, outside of the traditional walls of the museum, can be designed so that the experience not only introduces users to cultural heritage in contextual environments, but also so that these embodied encounters lead to personal interpretations of heritage phenomena, as well as influencing the way in which they makes sense of, or find meaning in, their surroundings. By following the structure and methodology presented in this introduction, the chapters that follow will further illustrate the background, implementation, and analysis of phenomenalisation, in order to establish this term as an underlying paradigm for the creation, categorisation, and analysis of mobile-driven experiences that extend the reach of cultural heritage institutions and their collections.

Chapter One: *Heritage Phenomena and the Modern Museum.*

1. Introduction.

The study of heritage in the 21st century is governed by both personal and societal agendas. These agendas are increasingly seen to be influenced by the growth and pervasiveness of digital technologies, which have led to a shift, or turn, in the way we view, engage with, and create meaning through what this thesis terms the phenomena of heritage. The overarching aim of this chapter is to introduce the emergent and contemporary museum landscape in which the theory of phenomenalisation is placed, by outlining the wider context of heritage studies and museum practices, and exploring various thematic elements that have influenced the emergence of the argument underpinning my thesis. In order to do this I will demonstrate that there are a number of approaches and forces that shape these agendas and the direction of heritage through time and in the contemporary era: notably museological values: constructivist approaches to learning: the rise of new media in the post-modern age: and the emergence of the digital heritage paradigm in museum and heritage studies.

The chapter will begin by looking at the origins and development of the museum and its relationship with society. From here the phenomena of heritage will address what is meant by the term heritage, before establishing both what constitutes heritage phenomena, and how it is valued and addressed in the wider context of heritage studies and within the context of the thesis. The following section, perceptions of heritage and the post-modern

turn, will show that the perceptions of and attitudes towards heritage have changed over time, shaped by the social and now technological conditions of the age. This section of the thesis will illustrate a crucial tenet of this work, which is the recognition of the value of individuals as contributors to both their own personal and a broader shared heritage. The next section addresses approaches to learning in heritage, setting out the educational context of post-modern heritage engagement. Building upon the notion of participation and the change in communicatory practice, this section examines the emergence of the participatory approach, and the role of constructivist learning theory in creating valuable and meaningful heritage experiences. The emergence of the digital heritage paradigm and an examination of the digital discourse are explored in the subsequent section to address how heritage studies and practices have negotiated the implementation of digital practices. Finally I outline the rationale this work takes in examining the relationship between heritage phenomena, digital technology and audiences.

1.1. Defining ‘The Museum’.

The purpose of this section is to make clear the nature of the museum in order to illustrate where this thesis is coming from, and also to indicate the route it is taking, by looking at how the concept and application of the museum has developed over time towards its modern definition. While the core aim of this research is to investigate how digital technology is acting as a significant aid in developing meaningful encounters, and creating new dialogues with heritage, it is valuable to uncover how the process of collecting, preserving, and sharing heritage has developed over time. As a

society, our relationship with the past is, in the opinion of this work, one that is both a personal and shared *experience*. Having said this it is also a personal and shared *creation*. The way in which these experiences and creations are formed comes from a variety of perspectives throughout our lives, and it is my intention to focus on the role that the institutions of heritage, notably the museum, have in this process.

The word museum itself derives from the languages of the classical civilisations, with the word *mouseion* pertaining to the temple of the muses in Ancient Greek culture (Lewis 2017). While it was not here that the first recognised museums originated, the role that Greek and Roman culture played in the collection and display of materials is one which still resonates on visits to many of the main museums in the world today. As patron divinities of the arts, the muses themselves provides us with the first indication of the purpose of museum collections in their earliest recorded infancy. Collections acted both as items of interest and learning, as well as venerated offerings (Lewis 2017), creating a relationship between those who would visit the museum, and both the recorded and perceived heritage of a society.

Today's museums act less in terms of appeasement with the pantheon of divinity, but those core elements of interest and learning still remain when it comes to engaging with cultural heritage. What is less concrete is the notion of what gives truth to the offerings that are displayed and the creation of meaningful encounters. In formulating the approach for this work, how museums have developed their values and approaches will provide the

grounding from which this research will develop. However, it is of particular interest that the writing of an Ancient Greek philosopher stimulates a notion that is particularly resonant to the concept of museological engagement in the present.

Writing in his *poetics*, Aristotle discussed whom it was who should 'make the past' (c. 305 BC/1970, 43).

> It is not the poet's function to describe what has actually happened, but the kinds of thing that might happen, that is, that could happen because they are, in circumstances, either probable or necessary. The difference between the historian and the poet is not that the one writes in prose and the other in verse. The difference is that the one tells of what has happened, the other of the kinds of things that might happen. For this reason poetry is something more philosophical and more worthy of serious attention than history; for while poetry is concerned with universal truths, history treats of particular facts (ibid).

The resonance in this citation relates well to the creation of heritage narratives, even in the contemporary era. As will be shown throughout this thesis, heritage is not history. It is not poetry either, but it is closer to a collaboration of the two than one or the other. Heritage is a representation of the past, as well as the resonant experiences and responses that are created through engagement with it. This process has altered throughout the course of the history of the museum itself, based upon both the values and technological capabilities of the particular contemporary era in which they

have operated. Therefore it is relevant to engage here with these elements as presented in the literature of museological history.

For the sake of brevity, it is not necessary in this section to compile a full historiography of the development of the museum since the beginning of its recorded history. However, in the context of this thesis, it makes sense to return to the values that surrounded the opening of the first public museums. Regarded as the one of the first modern museums worthy of the name, the Ashmolean Museum was founded in Oxford in 1683, to house John Tradescant's great cabinet of curiosities. Here people were introduced to objects and specimens of intrigue that only a select few members of society would have previously had knowledge or experience of (Impey and MacGregor 1985). Despite being at the frontier of communicating to the public new examples of historic and cultural interest, the methods of display and interpretation were still in their infancy. Glass cases and other methods of distancing the public from the treasures housed by these institutions had not yet been invented, and so when the doors were opened in the morning 'people would pour into the museum off the streets – just anybody – and pore through all these objects and laugh about them and be excited' (Walsh 2001, 4).

This event signaled the beginning of the public's relationship with the 'age of discovery' (Kavanagh 1990, 18), and the origins of the public museum, as we know it today. Museums such as the Ashmolean (1683) and the British Museum in London (1759) were 'born of a new civic and national consciousness' and became 'a credential of urban sophistication, the cultural

goal of a rapidly expanding nation' (Kavanagh 1990, 18). The objectives of this cultural goal can be seen in The British Museum Act of 1753, where museums were stated as being 'not only for the inspection and entertainment of the learned and curious, but for the general use and benefit of the public' (quoted in Merriman 1991, 1). Thus we began to see the museum as it is today, as being something for the people: an institution designed to collect, preserve, and display items of historical interest for all who feel that they might benefit from it.

However, despite the excitement and wonder generated by the great exhibitions in the early age of the modern museum, the irony of these new national institutions is that they did not represent the people or the culture that they sought to sophisticate, and the 'lives and experiences of ordinary people in a rapidly changing industrial age were far removed from the ideas that informed their collections' (Kavanagh 1990, 15). Instead, the management and display of museum collections became expressions and symbolisms of national and social elitism, which placed its focus on the classic disciplines (Kavanagh 1990, 14). Roman statues, Egyptian tablets and Greek marbles were objects of veneration, wonder and superiority. Through communicating the past in this way, the experience was not one that related to the individual or the society to which they were directly related, but was one which was a representation of an idealised society, expressed through the display of material culture.

In using the British Museum as an example of this nationalistic, or even imperialistic, form of museum communication, Donald Horne described the enterprise as a ‘grandiose declaration of imperial power’ whose ‘unparalleled collections were a declaration that Britain occupied a large part of the world and was now busy classifying it’ (1984, 70). Such declarations were based on political agendas that sought to transmit a prescribed notion of the past for the benefit of society at large. These agendas transmitted a notion of history that was influenced by the Victorian ideals of the day, stepped in hierarchical notions of social betterment and the values of the learned and influential figures of the contemporary era.

The trend was to classify and order the objects and artefacts in the ‘exhibition space of the museum to popularise a narrative of Western society as the pinnacle of civilization’ (Witcomb 2003, 102). This method is in essence the traditional paradigm of museum communication, where the ‘categorising and passing of information by the well-informed educated employees and benefactors of institutions’ (Pearce 1999, 12), ‘taught a hierarchical understanding of cultural development and instilled the values of materialism’ (Witcomb 2003, 16). The nature of this form of communication methodology in the museum resulted in a transmission that was top-down, linear, didactic, and to a great extent non-inclusive. Because of this the script of the museum was largely written, both literally and metaphorically, and the way in which visitors learned about heritage seemingly operated almost in a copy and paste fashion. This form of museum practice permeated deep into the 20th Century, but now both shifting values and new technologies have, over recent

decades, begun to help bring us closer to these collections as both individuals, and, at times, as a collective. The script of the museum is being re-written, not just by those who care for, study, and display collections, but also by those who visit them. Today museum visitors are audiences, users and participants, who actively engage with the various phenomena that the institution presents, while bringing their individual thoughts, experiences, and opinions to the processes of curation and interpretation.

In the present day, the International Council of Museums (ICOM) are responsible for defining the role of the museum, and the latest definition provided by this organisation is described as thus:

> A non-profit, permanent institution in the service of society and its development, open to the public, which acquires, conserves, researches, communicates and exhibits the tangible and intangible heritage of humanity and its environment for the purposes of education, study and enjoyment (ICOM Statutes 2007, 2).

First introduced in 1946, the definition of the museum has been revised by ICOM seven times since, and this most recent characterization demonstrates the current model of the museum structure, particularly in terms of its organizational priorities. In this thesis the elements of acquisition and conservation are only minor points of the discussion, although each of these aspects are important to the nature of digitisation in cultural heritage, particularly as new technologies have had an impact on how acquisitions are

made, while offering new strands in terms of preserving tangible and intangible heritage in digital formats for current and future people, including museum visitors, researchers, and cultural heritage institutions themselves.

However the rest of the statement remains central to the study. The communication of exhibits, both tangible and intangible, that represents humanity and its environment have been added to by the introduction of new digital software and hardware, and specific tools will be evaluated in the contemporary era in order to assess how digitised material is being used in new and imaginative ways to support the education, study and enjoyment of the public it aims to support. Furthermore, we will also see that the ICOM definition may well be due a further revision, in order to include a greater focus on interactivity. This is of particular relevance today in light of the way that digitally driven technologies are enabling us to expand the mission of the museum's capabilities for engagement, interaction and interpretation, and the definitions of its operational space.

If we think of museums in a traditional sense, there are several categories under which an institution may be classified, both officially and by the public, as a museum space. These include art museums, whose primary focus is the collection, preservation, and display of art collections, both historic and contemporary, for the development of public programs on a regular schedule (Smithsonian Institution 2001). Natural history museums specialise in how landscapes have developed over time, and the interaction between living beings and the environment has evolved. In much the same way,

anthropology museums explore the development of human societies by drawing upon cultural, linguistic, material and biological research. Botanical Gardens and Zoos reveal natural history through sometime wondrous collections of flora and fauna, while open-air museums, such as St Fagan's in Wales, reconstruct historic buildings to provide spatial and architectural understanding of the past. Eco museums have developed relatively recently in order to foster 'community driven projects that aid sustainable development through the exploration of a particular environment, its previous inhabitants, and the customs and peculiarities of a population' (Rivière 1989, 142). Science and technology museums take a more modern approach by examining and displaying the developments and advancements of these subjects, and the mechanics though which everything from the production of food, to the exploration of space, are uncovered. History and archaeology museums are great repositories of material culture and narratives. These museums aim to tell the story of human kind and to make links between our ancestors and us. They show how we have progressed through evolution and revolution, and through the sometimes remarkable, as well as the sometimes quite ordinary. Through chronological and thematic displays, they exhibit items of curiosity, confusion, beauty and revulsion, and each time they do this they elicit a response from the visitor, or an interaction, whether that be internal or external, produced or privately held. Elements of all the above are found within the walls of each type of museum summarised in this section, and it is the use of technology and the breaking down of these traditional walls, and new forms of interaction, that will be demonstrated further as this study progresses.

Many of the categories of museum outlined above relate to the main focus of this study - the Royal Albert Memorial Museum & Art Gallery (RAMM), Exeter, Devon. Opened in 1868, the origins of RAMM date back to the early 19th Century, when the Devon and Exeter Institution started to gather together objects in order to 'promote the general diffusion of science, literature and art to illustrate the natural and civic history of the county of Devon and the City of Exeter' (RAMM 2017). Almost 150 years since the establishment of the museum, its contemporary statement of purpose outlines the mission of the museum:

> The Royal Albert Memorial Museum & Art Gallery (RAMM) exists to enrich the lives of people living, working in and visiting Exeter by providing them with opportunities to be inspired, informed and entertained. The City's world-class collections are placed at the heart of everything the museum does. RAMM will acquire collections that document the natural and cultural history of Exeter set within its regional and national context as well as those that represent the City and region's connections across the world. The museum holds collections in trust for present and future generations, managing and caring for them for the public benefit (RAMM 2017b).

In essence this declaration reveals the core values of the museum that, alongside the definition of the museum set by ICOM, demonstrates the traditional mission and purpose of the museum. However in addition, RAMM operates under the strapline of 'Home to a Million Thoughts'. This subheading

to the mission of the museum offers a succinct synopsis of a more recent concept in museological approaches, in that museums actively encourage the thoughts, ideas, and knowledge brought to the institution by their visitors. By following the mission, museums provide the experience through which we, as visitors and participants, can create our own personal meaning with heritage. Through RAMM's collections we are invited into a number of worlds, which mix the historic with the contemporary in order to elicit enjoyable and meaningful encounters with cultural heritage. All of this will be looked at in more depth in subsequent chapters, but RAMM serves not only as a key source for material for the development of the thesis, but also stands as a representation of what people would recognise as a traditional regional museum operating in the contemporary era.

Following on from RAMM, an additional case study will be less obvious, or traditional one. Exeter City Football Club (ECFC) is located in the heart of the City of Exeter, and has a heritage narrative that goes back to the clubs formation in 1901. Indeed it could be said that the narrative of the club goes back beyond the date of their formation, with the home ground, St James Park, being used since the mid 19th century for various sporting and public events. Furthermore, the club was founded initially as St Sidwell's United by people of the local area, meaning that the traces of its heritage are found not only in the objects and stories generated by the game of football, but also by connections to the local and regional community.

The development of the heritage programme at ECFC will be discussed in further detail in chapter five, through which it will be shown how this club, its heritage, and its phenomena, have been brought together through the use of technology in order to explore and create new narratives from a variety of sources. In a section about how we define museums, it may seem odd to be talking about a football club, but it is the implementation of digital technology as a result of a collaboration between ECFC and the University of Exeter that has led to a number of programmes that begin to formalise what is predominantly a sporting facility into a cultural heritage institution. As a result we see the emergence of a form of museum whereby a place that is rich in heritage, both tangible and intangible, has utilised digital technology to communicate its past for the purposes outlined in the presented definitions of a museum.

For RAMM, ECFC, and all the different types of cultural heritage institutions discussed in the coming pages, the museological values of collection, preservation, interpretation and display remain at the core of all operations, in order to drive the fundamental functions of engagement, interaction, and learning. The desire to uncover aspects of the past and the present, through their various specialisms and focuses, remain central to the museum mission across all themes, whether they be an eco museum, an art gallery, or a football club. Museums and all cultural heritage institutions are frontiers for expanding the horizons of human knowledge and understanding outside of the formal education structure, and it is the advancements of technology that have opened up new opportunities for activities that explore cultural heritage,

its material culture, and the myriad of narratives that we may associate with them.

In the past, museums were institutions of authority that transmitted specific messages down to the public about the past from behind glass display cases, barriers, and do not touch signs. Gradually, they evolved into places that invite visitors to participate in an interactive and exciting journey (Nowakowski, 2016, 15). Today, these journeys have expanded beyond the walls of the museum into digital repositories of display and platforms for interaction, thus altering the traditional relationship between visitors and collections, and creating new opportunities for the museum community to develop their ideas and to show and interpret their collections. As we work towards the future of museology and cultural heritage practices, we must recognise that, in the words of John Stack:

> The museum of the future is not just a place where objects related to cultural heritage are cared for and displayed. It is not just a place where the stories of these objects and their significance is presented. It is a place where visitors (real and virtual) can interact with those objects and those stories, with the museum's staff, and with each other. Through these activities, the museum of the future is a platform where new ideas and meanings are generated, exchanged and preserved. (Stack 2013).

Museum collections, the platforms that are developed to engage with them, and the relationships that these elements have with visitors will be central to the focus and mission of the future museum, and the development of this association is vital in shaping, preserving, and disseminating personal connections with heritage through interpretations of past objects, places, individuals, cultures and societies. At the heart of these interpretations, in a digital sense, is what this thesis terms the phenomena of heritage. Therefore in the next section we will begin to unpack this term further, as it relates to the aims of the thesis presented.

1.2. The Phenomena of Heritage.

This section will explain what is meant by the term heritage phenomena, by looking first at the meaning of heritage itself, before outlining the components which make up what is the fundamental basis of this research, and alluding to how and why it is deemed to have significance and value in the realm of heritage studies. In arguing that heritage is something which is pervasive and surrounds us all, this section of the thesis also demonstrates that heritage phenomena is best understood as a collation of material, cultural, and personal paradigms, and that for a dynamic and holistic understanding of heritage it is imperative to recognise the interplay between tangible and intangible heritage in order to create valuable narratives of the past and to foster a relationship with it (Bouchenaki 2003, Munjeri 2004).

In order to initiate an understanding of the concept of phenomenalisation as it applies to heritage, it is important to first outline the meaning of the word

heritage itself. The term heritage derives from the French word *heritage*, which in itself means something that is inherited (Stevenson 2005). It is possible to confuse the term heritage with the word (and practice of) history, however while a great deal of history plays a role in the creation of heritage, the two are overlapping yet discrete entities. In short, heritage and heritage phenomena are the traces of the past that aid us in looking at and interpreting the past in the present context.

As the primary focus of this work is the interrelationship between heritage phenomena, digital heritage platforms, and heritage audiences (or users), it would seem prudent to look to the United Nations Educational, Scientific and Cultural Organization's (UNESCO) *Guidelines for the Preservation of Digital Heritage* document for a definition. Here heritage is something that is, or should be, passed from generation to generation because it is valued (2003, 3); this 'something' is further described as 'our legacy from the past, what we live with today, and what we pass on to future generations' (2003, 28). This is an intrinsic element of this thesis as the passing on of heritage is done so through as holistic an understanding of what it means to each generation. How we, and past generations, view heritage is fundamentally framed by the conditions of the age, and therefore we must find not only the best way to explore the past as we see it, but also how those before us defined both the term and practice of heritage.

Peter Howard's *Heritage Management, Interpretation and Identity* (2003) argues that heritage is a heterogeneous collection of things, and that the

study of heritage should aim to bring together, or at least make connections, between seemingly disparate elements of cultural heritage such as ‘Orange Order marches, national nature reserves, the Cenotaph, battle re-enactments, castles steam engines, coffee and roadside trees’ (Howard 2003, 4). This varied assortment of heritage resources is removed from what Rodney Harrison identifies as the ‘canonical model of heritage’ where only the very best can be conserved (2013, 231). Today anything that is considered important enough to be passed to the future can be considered to have heritage value of some kind (UNESCO 2017), while heritage materials can exist well beyond the limits suggested by national legislation or international conventions.

Heritage belongs to us all, ‘it is all pervasive and concerns everyone’ (Howard 2003, vii). The term inheritance in contemporary society has natural connotations with value. This value is best described by Alison Hems and Marion Blockley, who state that ‘the study of heritage, being able to read and interpret it, enriches people’s lives as much as literature, music or history. Access creates interest, interest stimulates understanding, understanding brings enjoyment, and enjoyment leads to commitment, all of which contribute to the quality of life’ (2005, 5). It is this process, in particular the elements of interpretation and understanding, which define heritage in the context of this study, yet further examination of what heritage is comprised of, and how it is viewed is required in order to understand its fundamental forms.

In the broadest of terms, heritage can be separated to include both natural and cultural heritage. Natural heritage is comprised of naturally occurring phenomena such as rivers and lakes, forests and fauna and everything nature provides from coastal tract to moor lands. Whilst moorland and the interplay with the heritage associated with it will later form part of this investigation, the primary focus will be that of the cultural aspect of heritage, its physical and cerebral traces, and the way in which we are developing a greater connection with both the people of the past and the traces that they have been left to us, whilst generating our own understanding of heritage.

The idea of cultural heritage itself is a familiar one, and is outlined by the United Nations Educational, Scientific and Cultural Organization (UNESCO) as being represented by physical (tangible) traces of the past such as sites, structures and objects and intangible things that have cultural, historical, aesthetic, archaeological, scientific, ethnological or anthropological value to groups and individuals (Webb 2003, 28). Thus heritage exists in many forms, both tangible and intangible. These forms are comprised of many features belonging to the culture of society, such as traditions, languages, buildings, monuments, or events which still exist from the past in documented forms, and which have historical importance to today.

The examples provided by UNESCO confirm that heritage surrounds all of us, all of the time. Just look around you now and you will see traces of heritage. While writing this chapter, I can see from my own personal vantage point, a handful of objects including a laptop, a nineteenth-century mahogany desk, a

portrait of my partner's grandmother and a number of items dubiously dressed as Christmas presents. This random assortment of materials may all collectively be classed as heritage phenomena, in that they can all be experienced or observed from a multitude of perspectives both personal and shared. Individually they may be deemed not to be in one sense of the word a phenomenon - extraordinary, or indeed of historical importance, but then this very much depends on the context in which they are situated and our perception of heritage. All things tangible have meaning or intangible relevance to someone at some point on the historical spectrum, whether they be a grand castle or a simple folk song. As Tony Gilmour notes 'there is no restriction on items that can be classed as heritage' (2007, 2). Again, as long as it has some value or interest to someone, somewhere, all items, be they tangible or intangible, become a form of heritage.

Within the context of this thesis, these items are termed with the classification of heritage phenomena or phenomenon, the most familiar of which in the realm of museum related heritage is the object or artefact. Objects are central to our familiar association with heritage as their prominence within museums acts as a compass to the development of society through the ages. These phenomena are often referred to as the artefact, which gives it an inherent association with something which is old or treasured, yet it is not the age which gives objects or artefacts heritage related relevance, but the fact that they constitute something which is made or given shape by someone, either through their creation or from the history associated with their use or ownership.

While these objects in themselves are vital remnants of a shared cultural heritage, this study aims to drive us towards a recognisable paradigm in which objects are engaged with in augmented and contextual environments, as it is in heritage environments, both natural and constructed, that we can immerse ourselves in the physical and cerebral traces of our ancestors. These traces range from the obvious, such as buildings and monuments to the more discreet, less easy to trace, and sometimes invisible signs of human existence such as, for example, the redirection of a river, an abandoned settlement or an urban environment which hides the layers of its past form under its vastly developed landscape. Beyond the more physical traces of humanities various evolutions and revolutions are the often-ghostly traces of culture and memory. Placed in the intangible categorisation of heritage, the elements that form these phenomena are potentially one of the most commonly relatable elements of heritage. Through songs and poems, stories and factual accounts, both written and remembered to be passed down through the generations, we have the pieces to create a range of narratives which tell the story of our heritage and gives life to both objects and environments.

The significance of these phenomena is both the way in which we engage with them, and the role they play or have played in the narratives of our world through each spectrum of society from individuals to civilisations' as a whole. In the field of object studies Elizabeth Wood and Kiersten Latham (2009) recognise the need to create a hybridised definition of the key characteristics of this element of heritage phenomena, yet their definitions are relative to

each aspect of our own recognition of heritage phenomena. For these authors their definition can be distilled into three representative and related paradigms:

1. Material Paradigm: recognition of the physical properties, the functions and uses, the extrinsic qualities that an object or artefact possesses. The material paradigm lends itself to more impartial analysis, but clearly comes with its own set of interpretive devices.

2. Cultural Paradigm: demonstration of an object within a contextual field, meaning conferred on an object by nature of group or social use, meaning endowed by the viewer and the maker from a broadly shared or communal perspective.

3. Personal Paradigm: marked by personal significance, evidence of a personal experience or relationship, definition of the self through biographical meanings or essences, containers of identity and personal narratives (Wood and Latham 2009).

Each of these paradigms as proposed by Wood and Latham reveal three distinct yet co-related ways in which heritage phenomena can be engaged with in order to gain greater understanding of heritage as a whole. While written from the perspective of object engagement it is evident that there is a place for each element of what we term heritage phenomena. The material paradigm focuses mainly upon the tangibility of heritage, its form and function

etc. yet we recognise that this is equally valid in the discussion and interpretation of the physical aspects of the heritage environment. The cultural paradigm relates to all elements of heritage phenomena and is particularly relevant to phenomenalisation as a concept as cultural context powerfully conveys both the past and present relevance of heritage phenomena to the user. The personal paradigm takes us deeper into reflective analysis of heritage and will be of most use throughout this thesis. Incorporating a fundamentally human perspective into the engagement with heritage materials, through this paradigm we can immerse ourselves not only in what makes the components of heritage relevant to the people of the past, but also create internal and external dialogues related to our own experiences and perspectives of a range of tangible and intangible heritage phenomena.

In outlining the relevance and perceptions of heritage, this thesis wishes to make clear that rather than disparate elements, there is an underlying synthesis that creates a relationship between tangible and intangible heritage. While they have seemingly different characteristics, the physical versus the cognitive, they are all significant as heritage phenomena, and the success or evocative power of each is in many ways related to the other. In *Archaeology Theory an Introduction* (1999) Matthew Johnson explains that ‘artefacts can’t tell us anything about the past because the past does not exist. We cannot touch the past, see it or feel it; it is utterly dead and gone (1999, 12), yet this sense of the past, and with it the potential to understand, value, and enjoy heritage, exists in the intangible remains that can be associated with any given tangible phenomena.

In turn, cultural heritage environments are home to both tangible and intangible phenomena, finding shape through everything from buildings and monuments to songs and narratives left to us through documented evidence and memory. In making a direct correlation between these definitions of heritage phenomena, Harriet Deacon observes that no heritage is completely tangible, as even the 'tangible can only be interpreted through the intangible' (2004, 31). Laura Jane Smith, in her book *Uses of Heritage* (2006), works from the premise that all of heritage is intangible. Indeed, Smith's primary focus is to draw away from heritages pre disposition to material culture and to examine the interplay between heritage and the self. This thesis draws upon Smith's assertion that it is important to challenge the emphasis placed upon the idea of material authenticity, and the preservationist desire to freeze the moment of heritage and to conserve heritage as an unchanging monument to the past.

The unmovable tangibility of heritage can be found in the use of phenomena in the performance of interaction. In essence, whether it is looking at an item in a museum, or exploring a historical environment, heritage phenomena become part of an event. For Philip Rhys Adams, the one time director of the Cincinnati Art Museum in the USA, art museums were like theatre sets, with objects and visitors aligned in tandem in performance. For Adams the objects rather than people were the main performers, taking to the stage to be 'their best artistic selves' (Adams 1954, 4), yet in the digital sphere it is the user that becomes the actor in performing a role that leads them through the structure

and program of the activity as it unfolds. In these scenarios phenomena and those who interact with them enter into a symbiotic relationship where the material, cultural and personal paradigms emerge in order to strengthen our understanding of how we see the world, both past and present.

In the context of this thesis, heritage phenomena, both tangible and intangible, lend themselves well to digitisation, allowing us to interact with objects and narratives of heritage phenomena at geo-located nodes of engagement, and to respond to them through an embedded approach to interpretation that draws our own sense and understanding of the world, both past and present, in conjunction with the information presented via the platform. While the digital representation of an object holds different characteristics to the physical version, the value and meaning of the item can still be evaluated through the paradigms of the material, the cultural and the personal. Moreover, through interaction the personal description of the phenomena in question evolves beyond considerations of the personal as it relates to the creator or original possessor of the item, to incorporate the personal interpretation of the viewer through the performance of interaction. Thus heritage phenomena are not only the tangible and intangible traces of the past, but they are also inherently contemporary agents in acting as prompts that help us value the past and make meaning in present contexts. Thus the process is influenced by the conditions of the age in which we live, and so in the following section we will examine how perceptions of heritage have evolved towards the perspective and paradigm in which we are working here.

1.3. The Evolution of Perceptions Towards Heritage.

Having recognised that heritage is made up of a wide range of interlinking and dynamic phenomena, this section will now address how the views and perceptions of heritage, as a construct of individual and societal opinion, have developed towards the context of heritage studies in which this thesis is grounded. Recognising that heritage is a malleable phenomenon shaped by the conditions of the age, it will be shown that the post-modern turn has moved heritage from a politically and hierarchically motivated agenda, towards one that recognises that there are multiple truths to the interpretation of heritage. The section will then display how both the turn in the perceptions of heritage and the influence of new media has led to the rise of a new museology; one which rejects the status of the museum as the absolute authority and accepts its traditional limitations, whilst acknowledging the value of individuals as contributors to both their own personal and a broader shared heritage.

The remnants of the past, and what they represent, have been addressed through the study of heritage which emerged from a variety of fields and disciplines including art history, built environment, tourism and leisure studies, archaeology, geography and history (Howard 2003, vii). Each of these disciplines have drawn from and contributed to furthering the understanding and uses of heritage, and given the broad scope of heritage, elements of each of these fields will lend themselves to this investigation. However, intrinsic to the understanding of heritage as explored through the study of phenomenalisation are the approaches taken by those who have specifically

contributed to the field of heritage studies itself. Most approaches to heritage have, over the past 30 years, adopted a constructivist perspective, which refers to the way in which 'very selective past material artefacts, natural landscapes, mythologies, memories and traditions become cultural, political and economic resources for the present,' (Howard and Graham 2008, 2).

In referring to the political agenda of heritage within this constructivist paradigm, Robert Hewinson (1987) provided a somewhat derogatory view, proposing that it was a response of nation states to the decline in the economic fortunes of the western world, and imposed upon their weaker citizens in order to legitimize their activities. Hewinson's assertion resonated with Patrick Wright, whose post imperialist view - presented in *On Living in an Old Country* (1985) - provided the conception that Britain was clinging to a nostalgic view of its glorious past. For some, heritage is a construct of numerous ideals in order to suit a given agenda. Frans Schouten, for example, defines heritage as 'the past processed through mythology, ideology, nationalism, local pride, romantic ideas, or just plain marketing into a commodity' (1995, 3). This elucidation of heritage as being formed by those who control the direction and agenda of heritage is perhaps visible if heritage is viewed from a top down perspective; however heritage is due a revision in its perception. Indeed not all commentators subscribed to the nationalistic provenance of heritage. Raphael Samuel was against the view that heritage was an elite phenomenon, and illustrated the universal appeal of an evolving heritage. For Samuel, heritage was just as active at a car boot sale as it was at Sotheby's auction house (1989). While the term universal may be a

contentious one, given that not everyone may instantly recognise that they are engaging with heritage at any given moment, it is within this notion of broad appeal that this thesis draws its inspiration. Heritage in being all surrounding and pervasive has the potential to be a process that is engaged with and contributed to by all those who have the tools with which to do so.

This is due in large to the somewhat ironic fact that the only constant in heritage resides in its ability to change. The notion that heritage is prefixed and prescribed, either by the static nature of tangible objects or an intangible agenda, is one which can be discarded. As David Lowenthal stated: 'heritage, far from being fatally predetermined or God given, is in large measure our own marvellously malleable creation' (1998, 226). Heritage is not about the past it is about the present and about the future. Of course many of the objects and ideas, the tangibles and intangibles with which it deals with come from the past, but heritage issues, both theoretically and practically, are what we do about them now (Howard 2003, 21). This is to say that the past itself does not exist as a temporal form of direct experience, yet heritage, both tangible and intangible, exists in the here and now and how we engage with it will have consequences for how it is utilised in years to come. It can also be extended further, as heritage, like the past, is not simply a collection of artefacts; it is a culture, a way of life, and is something that is continuously changing over time.

In returning to the constructivist approach to heritage, what shapes this change is largely the circumstances in which it is interpreted. Dennis Hardy

refers to heritage as a ‘value loaded concept’ (1988, 338), meaning that in whatever form it appears, its very nature is related entirely to present circumstances. What gives heritage its power to enrich people’s lives is the role that any given individual has in creating its meaning. Therefore, returning to the assortment of items that surround myself - the laptop, the desk, and the portrait etc. - each of these items has a meaning and resonance attached to them, which in turn provide part of my own personal heritage. The importance or connotation of each of these items will evolve and change over time due to my interaction with them or the relationships that may be formed around them.

The significance in their role, or indeed any form of heritage is the way in which they are framed or viewed from the perspective of the observer of their own individual heritage. Given that heritage is interpreted through the eye of the observer, and that views will tend to shift from one epoch to the next, heritage is best understood in what Gilmour terms ‘a social construct’ (2007) or in other words, it is the set of values that the current generation place on artefacts and identities associated with the past. As a construct, heritage takes its present values from the individual, social, economic and nuanced political values of today’s society rather than the elite and political institutions as proposed by Hewinson (1987) and Wright (1985).

The present context in which we find ourselves is a world that is increasingly defined through the relationships that are created both with and through the medium of digital communication. Such a medium allows heritage to exist via media representations on a variety of platforms. This allows heritage to be

viewed through the eye of observers in a number of different ways, allowing heritage to move away from hierarchical notions of the past towards a multi-layered performance that may embody acts of remembrance and commemoration, while also negotiating and constructing a sense of place, belonging and understanding in the present (Smith 2006, 3). This sense of context in creating value and meaning for heritage through a variety of performances and interaction is a core element of phenomenalisation, and its roots can be traced in the theorising of post-modern approaches to society and heritage studies, particularly in the sphere of contemporary museology, which places greater significance on multiple narratives, rather than a singular truth to the stories and meanings that can be attached to support the understanding of cultural heritage.

After postmodernism began to challenge the course of modernism, it became very apparent that ‘for almost any event or object there are so many truths’ (Howard 2003, 17) a particular point, which is imperative to the nature of phenomenalisation, and the social conditions in which this model of heritage operates. Authors such as Jean Baudrillard (1981), Francis Fukayama (1992), and Kevin Walsh (1992) have over the past three decades demonstrated ‘that we live in a new age, that of the post-modern and post-industrial, and that the essentially modern museum may need to adapt to new social and ideological conditions’ (Carman 2002, 85). These conditions are highlighted by a significant shift from consuming merely to satisfy the necessities of life, to consuming in order to satisfy life’s desires and values. In other words, consumption is increasingly less about needs and wants, less about things

and more about ideas (Falk et al 2006, 334-5). This conversion has led to the conceptualization of a new museology in which the visitor is recognized as bringing 'a living reality to the museum experience rather than the morally and intellectually blank slate assumed by museums in the late 19th and early 20th centuries' (Burton and Scott 2003, 6).

This museology, from which the work presented here is grounded, identifies that contemporary audiences are fairly sophisticated media consumers and less likely to value a museum that clings to a historic role as a repository of curious objects amassed by nineteenth-century specimen collectors' (Casey 2001, 15). Museums and other heritage institutions have recognised that the social and ideological conditions of our age are increasingly becoming dominated by the way we access, disseminate and communicate information on a personal basis. We are increasing linked to the networks created by the rise of new media, the internet, social media, and other flexible interactive technologies and platforms, which create a more dynamic, democratic and pluralistic history; and thus it is no longer possible in the 21st century for museums to be certain of their status as the possessors and distributors of absolute historical, social, and cultural, concepts and truths without finding a way to relate to the needs and expectations of the public.

Cultural objects in museum collections present the ambiguity of being physically tangible as a museum piece, but also being subject to change according to the different perspectives in which they can be interpreted and displayed (Giaccardi 2006, 30). A significant characteristic in failing to create

a full understanding of objects in a museum collection and developing a sense of interpersonal or holistic meaning attached to them, is the inability of museums to display material culture in its original and natural setting or context. The traditional method of creating context is based upon typological and thematic sequences, where artefacts and other representations of heritage are placed alongside each other to show their provenance. It also relies heavily on a didactic textual approach to curation and display, which is fixed by the researchers' personal interpretation. Such methods convey a clear understanding to the visitor of their place in both time and culture, however it is neither interactive nor immersive and relies heavily on the capabilities of the viewer to develop a feeling of the contextual world from which they came.

It also rests upon the interpretation given to the object by the exhibition designer. The value, meaning and relevance are the key elements of each object placed in the museum (Falk and Dierking 2000, Rowe 2002), yet this can be lost if an understanding of its creation, purpose and significance to the society from which it came is poorly or even not at all presented. Surely it is possible for us to contextualise objects for visitors, make meaning and therefore value? Museum professionals on the whole work very hard to articulate the meaning and context of an object, but without additional means of support the viewer will take this interpretation as gospel or reject the significance of the phenomena on display as having little relevance to their goals.

1.4. Participatory Learning Experiences in Heritage.

Moving forward from the preceding discussion, which highlights the shift in heritage perceptions brought about by the social conditions of our age, this section of the thesis aims to address how heritage practices are moving towards a participatory paradigm which reflects the needs and expectations of its audiences in this age. In order to ground the study in this context, I will examine research that looks into the role of new media in shaping learning and experience in museum contexts. In arguing that a didactic approach to teaching or telling the past, results in passive and unreflective experiences this section observes how others have illustrated that digitally led audience-centered approaches to learning can help users to build on their own constructed knowledge in order to create more meaningful experiences of heritage phenomena.

This evolution in museum practices has seemingly moved the practice of museums from being as much about how they negotiate the future as they do the past, and in doing so has led to a vibrant and dynamic strand of academic and professional endeavour known most commonly as museology. In the current age of heritage, it is imperative that the experience of the past is one where visitors understand the museum's communications about the meaning of the phenomena on display and the environments they came from. It is also becoming increasingly valuable for visitors to undertake a more active role in interpretation and reflection on the past. Learning is an intrinsically personal experience in terms of knowledge production, meaning making and awareness of ourselves, however paradoxically it is a shared human

experience which uses our personal framing to create expressions of shared knowledge and experiences. For those who examine the nature of learning within the context of heritage, these processes are the by-product of interpretive responses to heritage materials and concepts. Interpretation is a fundamental part of the museum philosophy, and one that is being re-addressed by the change in heritage practices brought on by the new media.

Interpretation of the material on display was (like the decisions regarding what to display) largely in the hands off the curators, but now visitors can use tools in order to take part in the process. The engagement in this process is particularly beneficial for the visitor from both an empowerment and educational perspective as ‘interpretation has always been considered as an effective learning, communication, and management tool, that increases visitors’ awareness to sites and artefacts’ (Rahaman and Beng-Kiang 2011, 102). This method moves us away from traditional approaches to education within the heritage sector. John Carman explains that ‘there has been a common perception shared by museum professionals, archaeologists and teachers that the proper atmosphere for learning is one of being taught’ (2002, 141), but the inherent danger of this is that a one-way style of presentation – ‘teaching’ or ‘telling’ the past – disengages the public and encourages a passive receptivity. Other approaches are possible which result in a two-way flow of information (Carman 2002, 143). In this sense, the model of communication in the museum should look beyond the traditional paradigm of teaching, towards one that engages the thoughts, perceptions, and knowledge possessed by their audiences.

This two-way flow of communication and interaction with heritage materials, landscapes, and a wider audience, is an inherent part of phenomenalisation. However according to the research conducted by Fiona Cameron and Helena Robinson many people who enter the museum do not want to take full responsibility for the interpretive process and continue to look to cultural heritage institutions to provide trustworthy, authoritative, and meaningful scholarly information (2007, 179). This is a perfectly acceptable position to have as each individual has different requirements and may logically prefer a passive museum experience. However Loic Tallon (2008) believes the trend is moving away from passive experiences towards personal relevance and interpretation. The moving trend has led Susan Hazan to believe that museums are in danger of alienating their audiences if 'it is felt that it is the museum that is controlling knowledge, expertise and learning' (2007, 2914). For Hazan, this is especially dangerous if the museum is seen to convey a 'patronizing attitude (which) goes against the grain of an agenda of self-directed learning, and individual agency' (2007, 141).

Within this debate, Ellen Hirzy explains the potential conflict between museums and their users, by stating that 'the same assets that people respect are also liabilities. For example, museums' reputation for accuracy and authenticity inspires trust, but it also endangers doubt about their ability to reflect a variety of perspectives, especially when they are telling the stories of popular culture' (2002, 16). The opinions of those who provide heritage content and materials are not necessarily those of the masses, but this

opposition can now be negotiated by utilising a range of technologies to present a number of models of communication with which to satisfy and stimulate eclectic audiences. Stories of popular culture can be produced by museum projects, which allow the narrative to be added to or re-written by the audience either reflectively or by contributing to digital platforms. These projects indicate a new frontier in interpretation while opening up possibilities of creating multi-vocal, shared and heterogeneous perspective of the past through active participation by users (Rahaman and Beng-Kiang 2011, 104), thus fostering a participatory approach to heritage that will ultimately dismantle the top-down approach to heritage as seen in previous eras.

Mary Ellen Munley acknowledged the participatory approach to museum learning in her 1984 *'Prospectus for a New Century'*, in which she recognised, among other factors such as 'choice, growth, service, diversity, quality and excellence', that there was a need for museums in the future for museums to 'avoid isolation, and to extend its collaborative efforts' (Munley 1984, 30). For Munley the museum of the future was all about making connections – connections between science and values, machinery and human life, and beauty and perception (1984, 31). This notion of collaboration with museums audiences, in order to create meaningful links with heritage concepts, was further outlined by Nina Simon in her seminal publication, *The Participatory Museum*[1] (2010), which provided a practical guide for heritage institutions who wished to engage their communities in a variety of ways in order not only to meet the museum mission, but also to create meaningful encounters with

[1] See also Nina Simon's blog Museum 2.0: http://museumtwo.blogspot.co.uk

heritage that led to a deeper personalized experience for museum visitors. For Simon, rather than being 'nice to have' these institutions can become must haves for people seeking places for community and participation (2010, 351). Simple exercises that encourage visitors to become contributors and co-creators can enhance visitor engagement, as well as the educational value of the museum experience, whether it be through a 'necessary contribution, in which the success of the project relies on visitors' active participation - a supplemental contribution, in which visitors' participation enhances an institutional project - or an educational contribution - in which the act of contributing provides visitors with skills or experiences that are mission-relevant' (2010, 207).

The participatory approach has become a core element of theoretical enquiry into more audience-central learning in a heritage context, which relies upon sound pedagogical principles regarding flexibility, social-ability, and activity (Parry and Arbach 2007, 281). A major contribution of educational research during the past century has been the focus on the processes that learners use, more than on the structure of the material learned' (Hein 1998, 15). Employing familiar and intuitive digital media is also an important aspect as humans are highly motivated to learn when they are in supporting environments; when they are engaged in meaningful activities; when they are freed from anxiety, fear and other negative mental states; when they have choice and control over their learning; and when the challenges of the tasks meet their skills' (Falk and Dierking 2000, 33).

The differentiation of the digital delivery method gives visitors the option to have a degree of control over the material they choose to engage with. This results in a situation where learning becomes a journey through which ‘the learner becomes increasingly empowered, an active pursuer rather than a passive consumer’ (Hawkey 2002, 116). In this light it is the responsibility of those creating content to recognise that it is the role of the museum, and the purpose of the technology that it implements, to provide ‘coherent frameworks and signposts, rather than delivering raw information’ (Hawkey 2002, 10); information which confers the process of meaning making to the audience which can be shared amongst individuals, groups, or in turn with the museum.

These signposts should encourage visitors to interpret the phenomena on display. In a rounded sense ‘interpretation denotes the total of activity, reflection, research and creativity stimulated by a cultural heritage site’ (ICOMOS 2005). Tilden Freeman described interpretation as: 'An educational activity which aims to reveal meaning and relationships through the use of original objects, by first-hand experience, and by illustrative media, rather than simply to communicate factual information' (1977, 33). This approach is extremely relevant in the modern museum, especially in relation to the creation of digital platforms for engagement that enable users to participate in the interpretation process.

Freeman’s six principles for interpretation are as follows:

- Any interpretation that does not somehow relate what is being displayed or described to something with the personality or experience of the visitor will be sterile.
- Information, as such, is not interpretation. Interpretation is revelation based upon information. But they are entirely different things. However, all interpretation includes information.
- Interpretation is an art, which combines many arts, whether the materials presented are scientific, historical, or architectural. Any art is in some degree teachable.
- The chief aim of interpretation is not instruction but provocation.
- Interpretation should aim to present a whole rather than a part and must address itself to the whole man rather than any phase.
- Interpretation addressed to children (say, up to the age of twelve) should not be a dilution of the presentation to adults but should follow a fundamentally different approach. To be at its best it will require a separate program (Tilden 1977, 34).

In summarising Tilden's core principals of interpretation, John Veverka, an American interpretive planner and trainer, and the author of the influential *Interpretive Master Planning* (1994), developed what he called 'Tilden's Tips'.

- Provoke the interest of the audience.
- Relate to the everyday lives of the audience.
- Reveal the main point through a unique ending or viewpoint.
- Address the whole (focus on illustrating a theme).

- Strive for message unity (use the right illustrations, vocabulary, etc. to present the message) (Veverka, 2005, 1).

The goal of these principles, or tips, is to improve the understanding of phenomena on display as well as the experience of the visitor. The aim is to move beyond the simple delivery of information, and to reveal meaningful relationships between heritage phenomena and the audience. These principals have been used widely in the discussion and presentations of heritage content for more that half a century, and provide a grounding point, not only for effective forms of museum communication, but also the digital technologies examined in chapter three, which specifically relate heritage phenomena to the everyday lives of participants.

Successful engagements with heritage material in all forms are based upon phenomena conveying some sense of meaning and relevance to the viewer in order to aid interpretation. The process of meaning-making is an inherently personal experience, and according to cognitive psychology, meaning making in our mind is a complex process and follows a series of steps, which predominantly depends on the individual's capabilities of mental process (Rahaman and Beng-Kiang 2011, 102). Unfortunately the history of education provides evidence of a long tradition of belittling personal meaning-making. Incorrect answers (often based on previous personal experiences) have been viewed as not only incorrect, but as something that needed to be expunged with moral force, as a character fault (Hein 1998, 18). But learning is not necessarily about correct or incorrect answers, and learning is never just facts and concepts.

Learning, particularly intrinsically motivated learning is a rich, emotion-laden experience, encompassing much, if not most of what we consider to be fundamentally human. At its most basic level, learning is about affirming self' (Falk and Dierking 2000, 34). Within both the field of education and the heritage sector, for which teaching and learning has been an important aspect of the communication process, there is finally 'an acceptance that there is not necessarily something wrong with the learner; the learner may simply have a different way of perceiving, and processing information' (Dierking 1992, 27). As we have and will continue to see in a number of examples, 'multimedia installations are able to engage emotions, and in the process produce a different kind of knowledge; one that embodies in a very material way, shared experiences, empathy, and memory' (Witcomb 2007, 36).

Writing from a museum perspective, Eileen Hooper Greenhill states that learning within the sphere of heritage should be developed within the framework of experiences as well as the delivery of factual information that traditionally accompanies displays and items in a collection. In light of this the concept of education has been deepened and widened, as it has been acknowledged that teaching is not limited to formal institutions but takes place through life' (1994, 2). This concept is termed by many, including John Falk and Lynn Dierking as 'free choice learning' which 'occurs during visits to museums, when watching television, reading a newspaper, talking with friends, attending a play, or surfing the internet. Free choice learning is indicative of our relationship with the new literacy and tends to be nonlinear

and personally motivated whilst involving considerable choice on the part of the learner as to when, where and what to learn' (2000, 13).

This process is relative to cultural heritage practices and its relationship with audiences in the modern communication era as 'humans are viewed as goal directed agents who actively seek information. They come to formal education with a range of prior knowledge, skills, beliefs and concepts that significantly influence what they notice about the environment and how they organize and interpret it. This, in turn, affects their abilities to remember, reason, solve problems and acquire new knowledge. In a general sense, the contemporary view of learning is that people construct new knowledge and understanding, based on what they already know and believe' (Bransford 1999, 10).

As George Hein states, in museums, visitors do not necessarily learn what is intended in an exhibit or program, nor do they necessarily learn in a sequence that is determined by the structure of the subject or the way the exhibit developers lay out the material. They make meaning based on the new experiences and how these fit into what they already have in their minds (1998, 16). Good museum experiences find a balance between developing enquiry skills and acquiring important historical knowledge, and an emphasis on understanding and developing critical analysis (Taylor, 2013). Recognising these factors is important in understanding that presentation of material in museums should work not in a singular effort to create knowledge, but to compliment and build upon it in (Proctor 2012). Museums, and all heritage institutions, now look to turn visitors into not only users of content, but also as

creators (Simon 2010), who are actively hands on, and minds on, in the heritage experience.

Digital presentation methods, which allow a degree of choice on the part of the user, are significant contributors in creating experiences through which the visitor can harness his or her potential understanding of heritage, and provoke a deeper level of thinking towards the various themes and exercises provided. These applications are crucial to the participatory mode of learning and experience in a heritage context as 'not only does learning require prior knowledge, appropriate motivation and a combination of emotional, physical and mental action; it also requires an appropriate context within which to express itself' (Falk and Dierking 2000, 34). The relationship between museums and digital technology provides the setting for which a wider range of people with multiple intelligences and preferences can thrive in a progressive and free choice learning environment.

1.5. The Digital Discourse.

The emergence of digital heritage, and its influence on approaches and attitudes to the heritage experience, has led to an increase in guidelines for best practice and academic enquiry particularly from the beginning of the 21st century. This section will introduce a definition of digital heritage, and outline these approaches in order to provide further foundations for the rationale behind the outlook to this thesis. Looking at the styles of discourse related to digital heritage, this section will highlight the importance of theoretical approaches to the subject in creating sustainable approaches to engagement

with digital heritage and the danger of falling into the ‘technology trap’ which serves as a barrier to true innovation. It is also recognised that what is paramount in developing attitudes to heritage phenomena in the digital paradigm of heritage, is the development of theoretical work which looks to shape knowledge and experiences, and investigates the relationships between heritage phenomena, digital technology, and ourselves as users and creators.

Digital heritage lies at the intersection between cultural heritage and digital media (Parry 2007, xii) and is made up of computer-based materials of enduring value that should be kept for future generations, and emanates from different communities, industries, sectors and regions (UNESCO 2017). For us it is the cultural heritage sector that provides the digital materials and practices for discussion, but this itself is a broad field. UNESCO, in their Charter for the Preservation of Digital Heritage (2003) outlined digital heritage as:

> Digital materials include texts, databases, still and moving images, audio, graphics, software and web pages, among a wide and growing range of formats. They are frequently ephemeral, and require purposeful production, maintenance and management to be retained (Unesco 2003, 1).

These materials will be familiar to all who have access to digital platforms both within and outside the walls of the various types of museum as outlined previously in this chapter, and ever since the internet became more prevalent

in all of our daily interactions, these materials that Ross Parry describes as 'e-tangibles' (2007) have become a more familiar part of the museum agenda. Over the past twenty years these digital heritage experiences have grown from providing digital representations of objects and their accompanying information on the Internet, to the creation of immersive environments both inside and outside the walls of the museum. Writing in *Code | Words,* Michael Peter Edson describes this period as 'an extraordinary project' (2015, 27) and outlines his experience of what cultural heritage institutions have achieved by stating:

> We've followed every step in the in the explosive growth of technology and its impact on society. We've digitised our collections and put them online. We've built websites and mobile apps; live streamed lectures and performances; and published electronic books, games, and educational materials. We've blogged, tweeted, catalogued, pinned, friended, poked, liked, crowdsourced, uploaded, downloaded, licensed, sold and organized (Ibid).

Edson goes on to outline the many codes and scripts used by technologists involved in the development of digital heritage from HTML through to Flash, but in the paragraph presented above he succinctly lists just some of the ways in which museums have looked to engage with the public in the digital age. Yet these are still just a fraction of what is possible, and Edson himself uses his chapter in this edited volume to acknowledge on what has been done so far in the sphere of cultural heritage is just a fraction of what is possible,

particularly in an age where there is a growing belief that high quality digital content from museums, and other cultural institutions across the creative industries, should be made accessible in digital form in order to act to support, sustain, and augment culture institutions and their audiences who are evolving to favour flexible and convenient access to technology services that facilitate tasks and cater for to specific user requirements (Anani 2005, 142).

However, during the course of this project, for some the implementation of digital devices in the museum sector has raised something of a paradox, with museums and technology often being thought of as a contradiction in terms – the new versus the old and dusty – but, in fact in order to advocate the process of heritage digitisation, it should be noted from a historicised position that when museums were first founded in the age of discovery, to house, classify and study all the objects flowing into Western Europe from around the world, they were the new technology. These collections served as the basis for great advances in evolutionary biology, palaeontology, geology and anthropology (Walsh 2001, 27). These advances came as a result of experimentation and innovation in a world where people served to provide products of thought, industry and application which functioned to meet their contemporary society's needs and agendas, and provide an important reminder of how museums must develop their content in order to remain relevant and valuable in relation to the society in which they operate, not only now but in the future.

It is hard to believe now, but the museum community did not always welcome technologies, particularly those related to the rise of the Internet. Parry

reminds us that ‘museums might recall some of their initial defensiveness to internet technologies that appeared to encourage an arm-length proxy contact with collections and that seemed to threaten even the primacy of the physical visit event itself. And yet, two decades after the birth of the web, museums increasingly see their distributed online audiences as important as those physically on site.' (Parry 2001,1). Initially there was a fear within the museum community that technology, particularly those that offered an alternative to the traditional museum visit, would reduce audiences and threaten the very existence of the museum. In a sense this fear has been founded, as we are seeing, from the top down, museums redefining themselves and their collections. However, digital audiences and physical audiences should no longer be seen as two distinct communities as ‘research has proven that online visits do not deter people from coming to visit the location as well; in fact, the opposite is more often the case (Thomas and Carey, 2005), as evidenced at RAMM where online visits consistently mirror the number of physical visitors to the museum.

Rather than losing audiences to digital technology, museums are now able to use these tools to expand their mission. In 2002 the DigiCult Report estimated that ‘less than 10% of all cultural heritage institutions in Europe [were] in a position to participate in the digital era’ (2002, 54) due to a lack of ‘human, financial, and technological resources’ (ibid). However, just fifteen years later, the Museums in the UK 2017 Report, conducted by the Museums Association, revealed that this trend has reversed, with only nine percent of museums not having some form of digital outreach (Heal 2017, 29). These figures represent a stable progression in the development of digital heritage

across the sector, and today the digital landscape represents the largest audience base that we have ever known in the heritage sector as 3.7 billion people, half of the world's population, are connected to the internet, while in Europe alone 84% of people have access to online resources (Kemp 2017).

Not only has the digital landscape provided opportunities to expand the reach of cultural heritage, but it has also enabled museums to share more of their collections in different and (sometimes) novel ways. According to Koven J. Smith, who works to help museums find their way in the digital era, this is allowing museums to move away from the curated highlights approach towards a model in which the entire collection is organised and made available for searching, browsing, and filtering (Smith 2009). This networked approach to heritage is facilitating the expansion of participatory roles in the cultural heritage sector. Through digital platforms, the curatorial facilitator is no longer the sole means by which a visitor might experience an institution – 'museums now encourage users to self-curate their own groupings from an entire museum's collection' (Smith 2009). Further to this, whole arrays of possibilities are becoming available to users beyond the physical space of the museum, allowing us to redefine what the museum is in a digital society. This in turn leads to a number of questions about where this paradigm shift is taking us, both as museum professionals and as audiences.

In order to provide grounding for digital heritage as a recognised and authoritative discipline in cultural heritage, publications such as the *DigiCult Report: Technological landscapes for tomorrow´s cultural economy, unlocking*

the value of cultural heritage (2002), *UNESCO: Guidelines for the preservation of digital heritage* (2003), *Heritage Lottery Fund: Using digital technology in heritage projects* (2012) & *The Horizon Report: Museum Edition* (2010 through to 2016), each contribute to provide the framework of development and view to the future of sustained development and practice of digital heritage. The focus of these reports is to examine the emergence of digital technology in relation to heritage and to place them into the context of the needs and requirements of both the heritage sector at large. Each publication recognises the shift in the desires of a digitised society and aims to provide a coherent strategy for the preservation of heritage materials and the design of digital schemes. The key aims for the sustainability, relevance and success of digital heritage can be seen in 'the digital promise' outlined at the beginning of the *DigiCult Report*:

- In the future, users of cultural resources will be able to enjoy new interactive cultural heritage services and products that relate to their personal lives.
- They will be able to manipulate digital artefacts online and participate in communities of interest.
- They will be supported by intelligent tools and agents that help them to locate the desired information to create their own stories.
- In addition, deeply immersive environments will make museum visitors dwell on in amazement in view of virtual worlds they could not experience anywhere than in the digital realm (2002, 8).

It is within these expectations that we witness the emergence of not just the core themes related to the practical application of digital heritage, but also the promise of a digital legacy of heritage, which recognises that valuable resources of information, and perhaps most importantly creative expression, are produced, distributed, accessed and maintained in digital form (UNESCO 2003, 31). Further to this, these publications recognise that this legacy is dependent not solely upon the technological driving forces and key trends in technological delivery, but also the theoretical development of digital heritage. This assessment is reiterated in each of the various Horizon Reports where it is noted 'that all too often that technology is the presumed focus of assessment in digitally delivered programs rather than changes in knowledge, attitudes or skills that may result from the activities of the program. Such a focus, while seemingly resonant with standard practice, can serve as a barrier to experimentation and innovation' (Johnson 2010, 5).

Such a statement should be unnecessary, but too often we are blinded by the capabilities of technology to solve old problems, rather than utilising them to create more forward thinking advances in our perceptions of heritage. This approach is what museum theorist Tomislav Šola warned of when he conceived the terminology of the 'technology trap' (1997, 225). Parry expands that this trap is one we can fall into when technology is pursued for the sake of technology. It is what catches us when we allow technology to become self-serving and we let ourselves be guided by it. His suggestion is that our defence against this is not just the know-how of professional experience, but also (crucially) our critical, analytical apparatus (2005, 333). As Parry himself

noted in his seminal work *Recoding the Museum: Digital Heritage and the Technologies of Change* (2005), 'much of the literature and published research on museum computing has been project-orientated, written largely by museum professionals with a view to best practice and procurement, and it has generally been indisposed to placing new technology within a conspicuous and coherent theoretical context' (2005, 338).

The research that Parry alludes to here is that which provides detailed intra-textual analyses of websites, hyperlinks and the design of virtual environments (Van Heur 2010, 406) yet remains descriptive and introspective, focusing on projects and their technical consideration (Cameron and Kenderdine 2007, 3). While such an approach has relevance and scope in the creation and development of digital assets for heritage engagement, what is required is further analysis of digital practices in praxis within theoretically grounded frameworks. Evidence of such work has in the last two decades begun to emerge. The first volume to address the need for a theoretical discourse in the heritage sector is Katherine Jones-Garmil's edited volume *The Wired Museum: Emerging Technology and Changing Paradigms* (1997). Although written through primarily technical lenses, the articles in this work began to address questions about the need for virtual environments to enhance the scope of engagement with digital heritage. This work ushered in a new wave of museological related texts including Selma Thomas and Ann Mintz *The Virtual and the Real* (1998), which re-examined the interweaving relationships between heritage materials, museum practices and their audiences. This re-examination of the heritage landscape expanded to

include a range of titles which fittingly included the prefix ‘re’ such as *Reimagining the Museum* (Witcomb 2003), *Reinventing the Museum* (Anderson 2004), *Recoding the Museum* (Parry 2005*),* and the *Reshaping of Museum Space* (Macleod 2012). Each of these texts addresses the impact of new media and attempt to re-orchestrate the theoretical understanding of museums as audience-centered experiences.

These texts also ask, and attempt to answer, questions related to how post-modern audiences respond to heritage content, and where they choose to look for answers related to shared, contrasting, and personal heritage. While each of these texts make valuable contributions to the remodeling of the relationship between museums and their audience in the digital age, few have engaged in sustained analysis and theorizing on the dialectic between tangible heritage and ‘digital culture’; a relationship that is increasingly central to the ways in which people engage with the past (Cameron and Kenderdine 2007, 1–2). Put simply, more work is required to understand the symbiotic relationship fostered through interaction between ubiquitous digital platforms, heritage phenomena, and audiences, in achieving the various missions of the modern museum.

1.6. Towards Phenomenalisation.

It is evident from the preceding sections that digital heritage is a broad and ever expanding field. When combined with the assertion that heritage, and its associative phenomena, is something that surrounds us all there is a clear need for focus when both fostering and assessing the relationships between these elements of cultural heritage and participatory audiences. In this section

we will outline the position of this thesis, which defines the digital heritage experience as one which involves the use of technology in order engage with digital heritage phenomena through meaningful interactions that results in the interpretation and dissemination of the material on display in contextual environments.

At the turn of the millennium Alonzo Addison (2000) defined digital heritage as having three stages, or domains. The first is documentation, where research is conducted in order to find information about the phenomena in question. The second stage is representation, where heritage items go through the process of digitisation, and the final stage involves dissemination, where researched and digitised materials are presented to the public using a range of methods and tools. It is this third phase and the way in which this creates meaningful interaction that is of most interest to us here, as it is through forms and structures of dissemination that we can evaluate the digital heritage experience in relation to this study.

Since Addison's taxonomy of digital heritage, the three stages of development have also seen the addition of a fourth phase of development, where through the use of web 2.0 technologies the museum is able to engage in direct dialogue with their audiences. Now museums operate in an environment where new forms of expression and communication have emerged that did not exist previously (UNESCO 2017) and ubiquitous computing (or ubicomp) has resulted in an age where in the UK computers surround us all, supporting our daily lives and interactions (Mühlhäuser and Gurevych 2007, xx). These

tools have become increasingly important to cultural heritage in reaching and connecting with audiences who are now familiar with accessing information via computers, tablets, and smartphones.

The emergence of ubicomp in relation to digital heritage has seen a number of museums add to their in-house technology, such as audio guides, films, and interactive kiosks, by tapping into technological tools that operate outside of the traditional museum space; namely smartphones and other mobile devices. In this landscape we see the potential for ubiquitous, inclusive cultural participation that enables museums to reach out to all populations as digital broadcasters and publishers, to represent diverse points of views, and to expand museums' role as on-site and on-line cultural community centers' (Stogner 2009, 394). It is also enabling other owners of cultural heritage phenomena, such as Exeter City Football Club, to harness the world around them to create heritage experiences in contextual environments.

This emergence of these operations leads to an interesting field of study within the discipline of digital heritage, in that it not only explores the expanding boundaries and reach of the museum, but it also enables us to examine how users respond to heritage phenomena across nodes of engagement, placed in contextual environments related to the phenomena or narrative in question. It also leads us towards a re-evaluation of the contemporary definitions of the museum, as the core operations of a museum a repurposed in digital form. What we are specifically looking at here is how the digitised platform of personal mobile devices is reversing the traditional

paradigm of collecting phenomena from the outside world at large, by generating an interactive landscape of heritage phenomena in the world outside of the traditional space of the museum.

These worlds provide an opportunity to examine the process through which users become participants in the heritage experience in order to create not only meaningful encounters with heritage, but also contribute to a shared understanding of the past through personal interpretation that builds upon the knowledge, thoughts, and experiences of the individual. By linking digital heritage phenomena to contextual landscapes, new forms of narratives, that are supported by devices that help us to interact with the world around us in our everyday lives, have the potential to emerge to create new perspectives on the material and cultural elements of heritage phenomena, as well as generating personal responses that can be shared through cultural co-creation. As a result the third phase of digital heritage moves beyond dissemination solely provided by the museum, towards the dissemination of material produced by the public that is created through interpretive activities powered by digital devices.

1.7. Conclusion.

What we have seen thus far is that the museum has developed from an institution designed to transmit ideas of human achievement and social benefit from a top down perspective, towards one where the audience is central to the creation of meaningful experiences from the bottom up. In achieving this the heritage sector has increasingly turned to the influences of

digital technology, which is better suited to catering to a wider range of user requirements as well as adapting to a continuously evolving heritage that is less about truths and more about concepts and ideas. This changing paradigm of museology has cultivated a post-modern approach to heritage that is less about absolute fact, or truth, and more about exploring the concept of heritage in a free choice fashion. This fashion leads us away from a didactic approach to heritage to one that is based upon a constructive learning theory, which encourages activities that aid the understanding of phenomena and the creation of personal meaning and multiple narratives, or as RAMM would say ‘a million thoughts’.

This evolution in heritage consumption has led to the emergence of digital heritage as a discourse of practical and academic enquiry. The debate has pitted the real against the virtual, yet we have seen that much like intangible heritage the lines between the two are blurred and the collapse of physical space in this digital and information-based paradigm now requires museums to re-assess their relationship with objects and collection. We have moved from an authoritative view of heritage to a collective collation of heritage that recognise that digital technologies can provide a myriad of experiences which are shaped through engagement, interaction and interpretation. Technology promises to offer us more, yet what is fundamental to the continued development of theoretical approaches to heritage is recognising that the changes in knowledge, attitudes, or skills, that may result from the activities of the programme are more important than focusing on the technical considerations of digital practices. Central to this is the evolution of

educational and interpretive perspectives, which recognise and outline how digital media is shaping learning and experience in museum contexts. The perspectives outlined above illustrate the influence of post-modernism in reshaping what is valued in a learning context.

Digital delivery offers lots of additional information but it also aids the exploration of heritage, acting as signposts in creating free choice and participatory learning experiences. By allowing users of content greater access to material, both inside and outside of heritage institutions, digital devices allow heritage materials to circulate as heritage phenomena, placed in contextual environments at nodes of engagement in the form of digital artefacts, scenes and narratives. Within this context we are able to view heritage from a perspective that allows us to engage with heritage from both an informed, and most significantly an intuitive level. This process seeks to provide us with a method through which to actively explore and participate with heritage phenomena and heritage environments, whilst enabling us to look deeper into the narratives of heritage through our own constructively developed perceptions.

The result of this process is a holistic and culturally valuable approach to heritage engagement, which encourages users to contribute to the historical record, either through creating a personal sense of how they relate to items and themes of heritage phenomena, or in a communicatory paradigm which seeks a variety of thoughts and opinions, in order to reveal a multitude of perspectives which can be linked to heritage phenomena.

As the primary agent for the development of the thesis, the following chapter we will look more closely at the emergence of the smartphone, the mobile nature of heritage phenomena, and the ways that museums have utilised this particular digital technology in bringing together digital tools, heritage phenomena and the landscape. By examining this mode of presenting heritage phenomena, it will be shown how elements of heritage, both tangible and intangible, are brought together in a range of environments other than the traditional museum space, in order to create scenarios from which phenomenalisation may emerge.

Chapter 2: The Growth of Mobiles and the Value of Phenomenology.

2. Introduction.

Chapter one outlined the how attitudes and practices in cultural heritage have been influenced by the technological developments of the age, as well as a range of theoretical and practical perspectives related to digital interaction with heritage. One of the major influences upon these changes is the introduction and development of digitally-driven mobile technology to the museum agenda, and it is the emergence and development of this particular tool that underpins the rationale for this chapter. The digital world encompasses a variety of elements in our everyday lives, from work to leisure, curiosity, and education, and relations with other people such as close friends, family, colleagues, and peers, whilst also facilitating the opportunity to connect with others in a networked society. It is within this digital world that cultural heritage institutions such as the museum find themselves, and as scholars and professionals it is vital that we tap into this environment where museum visitors may utilise these modes of communication to act as users and producers of content through stimulating scenarios.

In the first section of this chapter we will look first at the development of mobile phones in relation to wider society. Society at large is not only where museum visitors come from, but is also the arena in which technological advancements have influence on those who design and curate digital platforms for the museum. It will be seen here that advancements in mobile technology have seen a rapid rise in user numbers, which in turn has provided

the cultural heritage sector with a significant user base to whom they can aim their museum missions towards. The following section will then delve further into the relationship between museums and mobile technologies. Here it will be shown that mobile and the museum is a natural alliance as phenomena is in itself a mobile entity, which can be curated in a number of ways to suit the purpose of an intended exhibit or message. Furthermore we will see that mobile platforms have been part of the museum experience for more than 60 years, and the discussion that follows looks at its relevance to users in the digital age where ubiquitous computing has shifted the role of the museum in the provision of content.

The use of mobiles in heritage also sees the realisation of the ‘museum without walls’ (Malraux 1953), and therefore in the following section we unpack this term both from a historicized perspective, as well as a contemporary one within the context of using mobile smartphones as a digital tool. The assessment of the museum without walls and what it should perhaps look like then leads us to the final sections of this chapter, which advocate the use of phenomenology as an approach in creating platforms for mobile heritage. Here we will see that phenomenology, both as a philosophy and a means of archaeological investigation, incorporates many themes discussed both in this and the previous chapter. Ultimately in all, we will see that the development of mobile smartphones has created a mobile society, and that this aligns not only with the nature of museums and heritage phenomena, but also provides us with a tool for engagement, interaction and interpretation that

fosters meaningful heritage experiences and the production of personal knowledge.

2.1. Mobiles and Society.

The purpose of this section is to chart the rise of the smartphone, in order to support the claim of this thesis that mobile technology should be seen as one of the most influential tools at the disposal of cultural heritage institutions such as the museum. As seen in Chapter One, in developing theoretical approaches to heritage, as well as practical frameworks for interaction, those who operate in roles related to heritage have been hugely influenced by the development of digital media over the course of the past half a century. This influence is more often than not tied to observations of how society interacts with media in the world at large outside of cultural heritage. A cursory view of the world and society that surrounds us reveals the scale and impact of digital technologies upon all aspects of daily life. Here in the digital epoch in which we now live, we have a world that is supported and influenced by the devices that have become increasingly ubiquitous over the past few decades, particularly in the developed world. Televisions, computers and mobile phones are perhaps the three most commonly used items in daily life, and represent technologies, not just of convenience and entertainment, but also technologies that supplement, support, and drive our daily interaction with the world around us.

For this study the mobile phone provides the central element, or tool, in driving not only this thesis but also the way in which museums can connect

their audiences in a meaningful way with the phenomena that they hold. The reason for this lies in the upward curve of mobile use in the developed world, and in particular the United Kingdom where the investigations for this work has been undertaken. It also resides in the fact that of all the aforementioned devices, the mobile phone has developed over the past three decades to incorporate the abilities of televisions and computers, as well as additional capabilities that neither of the other two digital technologies affords us. Not only this but in researching the use and relevance of digital heritage the mobile appears to be the most significant as 'the future of mobile is the future of computing' (Hanson 2011, 34).

In the UK the very first mobile phone call was made in Parliament Square, London, as the clock struck midnight to usher in the year 1985 (Clark 2015, 1). The call was made on a 'Transportable Vodaphone VT1 that weighed 11lb, and if you'd wanted one yourself you'd have had to have stumped up around two grand' (Ibid). Due to the fairly prohibitive cost the transportable, or mobile, phone was largely a luxury item seen by society at large as a device for the elite or characters on the film or television screen. At this time the computer was the darling of the mass market, with companies such as IBM, Compaq, Commodore and Apple battling it out for their shares in the arcade of everyday life, while Intel and Microsoft maneuvered themselves to provide the software that eventually made the personal computer ubiquitous in the modern world.

While the mobile was behind in terms of reaching a mass market, the next two decades would see an exponential rise in both technological capabilities of

these devices, as well as their adoption by consumers. In America in 1993, the world famous manufacturer of the 'Big Blue' computer, IBM, had developed a phone to include apps such as a 'calculator and a calendar' (Wicks 2015, 3). While not seemingly groundbreaking to users of smartphones today, this advance signaled the beginning of the mobile phone becoming more like a computer in its delivery of content. SMS text messaging became the next big thing in mobile communication, and by the turn of the millennium, where Nokia ruled the market and when polyphonic ringtones were the very height of sound sophistication (Kaye 2015, 1), mobile phone ownership in the UK rose dramatically from 46% of the population to 76% (Braggs 2011, 1).

The seminal moment in the shift from mobile phone to smartphone technology came on the 9th of January 2007 when Apple founder and CEO, Steve Jobs, unveiled the first iteration of the iPhone. It is perhaps pertinent that the publication of this research comes one decade one from that moment, not just for the poignancy of the date as the tenth anniversary, but also as it provides a tidy measure of the relatively short time that museums and cultural heritage institutions have had to negotiate and implement their modern mobile practices. More on this later, but for now we recognise further the impact made by apple. From IBMs adoption of calendars and calculators in 1993, to the roll out of the iPhone just fourteen years later, the capability of phones to harness much of what we desire as connected audiences had grown significantly. The impetus for the iPhone was built on the success of the iPod device, which cornered the mp3 market in terms of digital audio delivery. Now,

with the iPhone, we had one device though which we could access all of our music, connect to the Internet, display video, play games, and communicate through a range of coded applications. Essentially mobile phones themselves are an application that facilitates the use of other applications. From a technical point of view they allow us to connect to the web and to the Internet, to view pages and pages of information and to send messages directly to specific sources or into the ether. They provide access to information; lots and lots of information, which comes in increasingly sophisticated forms, many of which we will explore further later on in the form of audio, video, photography, GPS and augmented reality (AR).

Moreover, not only have mobiles become more sophisticated, but also so have we as users. Mobiles as a tool have become more and more familiar, and have become central to the lives of millions. Today we are used to carrying mobile phones with us wherever we go, using them on a daily basis in everyday life to send text messages, browse the Internet, play games, take pictures to keep or share on social media, and even make the occasional phone call. On a personal level, mobile communications help us to manage our relationships, organise leisure time, and ensure our personal safety (Newland 2005, 3), yet they also have the potential for us to link the past to the present by developing platforms that harness the capabilities of smartphones in order to display digitized content of historical interest that can both consumed and interacted with in a variety of contexts. Today it is widely acknowledged that we live in a smartphone society, particularly in developed nations across the world that include the United States and Japan, as well as

many of the major European countries such as France, Germany, Italy, Spain, and the UK (Sarwar and Soomro 2013, 217). In 2016 Ofcom produced a report that showed that a third of all Internet users (33%) access online content via their smartphones, a rise of 11% from the previous year. In comparison primary access to the Internet via desktop computer and laptops had dropped from 40% to 30% over the same period, marking the long proposed shift from computer to mobile as the primary means of accessing digital content. Furthermore, mobile phones are the most widely owned Internet enabled device, edging just ahead of laptops in 66% of homes (Ofcom 2016, 6).

The Ofcom data also reveals that 93% of the population owns a mobile phone of some description. In all these figures demonstrate a significant societal shift in relation to this work, in that it shows that access to mobile information is becoming fundamental to users of digital content and further supports the assessment of this work that museums need to strengthen their commitment to mobile content as a core part of their interpretation and engagement strategy. The mobile is now as significant an agent in the digital era as any other digital device, and is perhaps the one device that has the greatest potential to reach the widest possible audience in interactive heritage scenarios. Granted, just because people at large are using mobiles on a mass scale in everyday life does not automatically mean that they are going to utilise this tool to engage with heritage phenomena, however with global mobile data traffic growing at enormous rate of 74% in 2015 alone (Freeman et.al. 2016), alongside advancements in the applications connected to mobile

devices, it means that finding out what we can do with mobiles, and what audiences get from these experiences, is vital for a healthy approach to digital interaction with heritage both now and in the future.

While not a comprehensive history of the evolution of mobiles, this section has served to succinctly illustrate the growing rate and use of smartphones in wider society. In essence these next generation communication devices are essentially computers that fit in the pocket or hand of the owner and are 'able to connect to the (internet) network wirelessly from virtually anywhere' (Johnson 2010, 9). Science fiction has become science fact, and so, with these forward thinking advances that most likely seemed futuristic to those who attended that Vodaphone New Years party, we paradoxically have a tool that helps us to connect more fully to the past than at any other time in history. Significantly, these advances resonate with the themes of constructivist and participatory learning that have previously been discussed. Therefore we will now turn the attention of this chapter towards discussions about mobile technology in the heritage sector, before unpacking in more detail the philosophical implications of the smartphone in relation to encounters with heritage and its interpretation.

2.2. Mobiles and Heritage.

The emergence of smartphone technology has led to a good deal of discussion and research regarding the role of mobile phones in the museum and cultural heritage sector. One element of this discussion surrounds how we can utilise the devices in people's pockets, and hands, as a way to

connect with their visitors in augmenting the physical space of its exhibitions. Looking at the implementation of apps, which exploded onto the various app stores in the latter part of the last decade (2000s), there are a range of motivations to employ this technology as 'having an app for your institution provides a service on many levels - it's cool and modern, it provides information to visitors in a transparent manner without being intrusive to the physical gallery space, and it offers institutions a powerful marketing tool' (Forbes 2011, 45). In this we see the effective potential of mobile, and when combined with the user numbers outlined in the previous chapter there is no wonder that cultural heritage institutions are turning to mobile to extend their visibility and to add additional layers of interpretation to the in gallery experience.

Other questions arise regarding mobile technology such as cost, future proofing, and relevance (Walker and Tallon 2008, Proctor 2012), and in the last few years conversations surrounding mobiles and heritage have expanded dramatically. Looking at the various decisions that need to be asked by institutions when designing and implementing their mobile strategy, Ted Forbes, the former Multimedia Producer at the Dallas Museum of Art, urged the people that read his article, *Native or Not? Why a Mobile Web App Might Be Right for Your Museum,* to 'step back and look at their strategy from a 20,000-foot view' (2011, 57) and ask the following questions: 'what are the costs associated? Do the development costs create a program that is sustainable and able to evolve? What about future devices that haven't been conceived yet?' (ibid). Forbes also poses the questions of 'how does this

affect the user's experience? Will visitors be frustrated and distracted, or will they find the content useful?' (Ibid). Questions such as these highlight the importance of strong theoretical approaches regarding how cultural heritage practitioners look to utilise mobile technology, as well as the need to understand how a networked society responds to heritage phenomena and the environments in which they are placed.

In furthering this discussion, Christine Conciatori, content project manager at the Canadian Museum of Human Rights, stated that 'using technology can not be simply motivated by the desire to have a cool app. Technology is not a goal in itself. It offers a powerful medium to deliver a message, content to the visitor, in person or virtually. The pressure to attract new visitors forces museums to try to be more seductive' (Conciatori 2017, 21). New technologies may be part of the answer; however, it cannot be empty and devoid of substance. Without a solid message, technology merely becomes a gimmick. 'What is important is the message as this is what sets museums apart' (Ibid). At a time where museum budgets are stretched, it is important to develop tools that engage audiences and resonate in a meaningful way, to deliver the message of the museum, or a message inherently personal to the user themselves. This of course will lead to questions regarding the balance between sustainability and innovation, and so it should, yet the focus should be on mobile experiences that 'bring in and (hopefully) retain new audiences by making the museum more immediate, accessible and relevant' (Rodley 2011, 61) through the offer of content that is both new and relevant to visitors.

The notion of mobility has been central to the practice of cultural heritage and museums from the beginning of their story, and today smartphone ‘apps probably come to mind first as the iconic, ground-breaking mobile platforms poised to transform the museum experience for all of us’ (Proctor 2012, 12), As outlined in chapter one, when museums opened they were, in a sense, the new technology, and in the absence of television and computers, let alone smartphones, museums provided a setting in which people could be wowed, entertained, and learn from the world not only around them but also worlds far away, both spatially and temporally. Cabinets and displays brought together things that visitors had, in all likelihood, never seen before in front of their very eyes, and allied these materials with information and stories to support the experience of engaging with seemingly foreign items. In this we see the beginnings of why museums and mobile mix so well. Museums have always been mobile experiences, and are so even without the implementation of mobile phone platforms and digital devices, because the phenomena that are contained within exhibition spaces can be moved and arranged to suit the interpretative design of the curator.

Exploring this further there are two key elements of traditional cultural heritage institutions that are, and have always been, fundamentally mobile. The first of these significant fundamentals are heritage phenomenon themselves, which are collected, conserved, curated and displayed by those who endeavor to share our tangible and intangible past. Rarely are the tangible aspects of heritage phenomena ever ‘born’ inside the walls of a museum, and I ask you to forgive this obvious statement, as it is apposite here to identify a key aspect

of heritage phenomena that is particularly relevant to the argument of the thesis. The tangible artifacts held within the walls of the museum come from locations all across the globe, displaced from their point of origin and arranged in new contextual scenarios. They may come from foreign lands, and they may also come from other areas of the country, or, as is often the case, they arrive at the museum from regional and local sources. However the fact remains the same, that the content of museums are, in their very essence mobile, having been removed from an original context and reframed, sometimes on multiple occasions, to form a part of the narrative of its new home.

The second definition of mobile within the museum is the way we traverse the space of museums. One of the key characteristics of the museum experience is that it is not static. The items in them (more often than not) remain fixed, yet exhibitions and galleries are designed in order for us to move through them, from item to item, in order for visitors to make sense or meaning of each as part of a wider narrative, in fragmented parts, or even in isolation. A specific example of mobility based design in the museum sector can be seen at the previously mentioned Ashmolean, which, through renovation in the early part of the 21st century, designed its galleries under the banner of 'crossing culture, crossing time' (Brown et.al. 2015). This approach utilized ergonomic and architectural design, in order to create sightlines between distinct yet relevant collections of material culture, in order to provide the opportunity to create a mobile experience that facilitated making connections between

collections possible[2]. The mobility of items, and the way that they are presented in museums and galleries differs across all institutions, yet the fundamental point to be made from the examples is that museums are mobile, although it is the adoption of technological devices that provide the literal platform for the definition of mobile cultural heritage, as well as the development of this study.

Therefore, moving on to mobility from a technological point of view, mobile devices were introduced to museums galleries as early as the 1950s, where platforms were created in order to provide more information about where museum phenomena came from, and how individual items and collections were both created and curated. Viewing this from a historicized perspective, the first handheld museum guide was the Stedelijk Museums Short-Wave Ambulatory Lectures in 1952. Designed using the new media of the day the purpose of the audio technology was to facilitate 'an experience individually controllable by each visitor, which was content rich, was personal to them, was available at any time, and suited learning styles not served by catalogue, text panel, or label' (Tallon and Walker 2008, xiii). In developing these platforms the museum developers were able to enhance the immediacy, accessibility and relevance of the items of display, and given the success of the approach it has become increasingly familiar since the Stedelijk Museum's seminal creation to see museums using 'portable devices to deliver traditional

[2] An example of this can be seen on the first floor of the museum, where collections of western sculpture, influenced by Japanese Samurai culture, could be seen directly from the oriental gallery, and vice-versa.

audio or audio-visual tours of exhibitions and collections, that today are enhanced further with rich media and interactive content' (Johnson 2010, 9).

When looking at the literature regarding mobile devices, as well as an empirical assessment of museums across the UK, we see that the audio guide has been seen as an indispensable part of the museum programme when it comes to the types of supplementary material offered to the visitor (Falk & Dierking, 2008, 20). By 2004, approximately 35 million audio tours were distributed annually in cultural heritage organisations around the world (Tellis 2004, 2), through which visitors could traverse the physical space of the museum and access further information about selected items on display. Not only did these devices extend the opportunities afforded to visitors in accessing information, but also surveys of handheld technology users in museums have found that visitors spend longer in galleries when using audio guides (Proctor & Tellis 2003, 23). Clearly the evidence points towards mobile as a natural fit, not just for extending the cultural heritage experience, but also as a tool that connects directly with the nature of museum curation, and importantly its familiarity with museum audiences.

This familiarity with mobile devices has led many museums to move away from the creation of bespoke audio tours, toward the provision of software, in order to foster the *bring your own device* approach (BYOD), a term coined by Intel in 2010 (Johnson et al. 2015, 36). In the earliest days of mobile interpretation, audio was the only medium that could reliably deliver that kind of narrative content in a small, portable package. Most museums did not have

this content readily available in aural form, meaning that it had to be produced from scratch, involving either a significant investment in production personnel and equipment or the engagement of an outside vendor (Smith 2009). This offers obvious practical benefits in the sense that museums do not have to install costly hardware that has to be replaced every few years (Droitcour and Smith 2016, 78). It also makes sense from a point of view of public engagement, as mobile devices can connect directly to the museum in a multitude of ways by using delivery methods such as QR Codes, which require direct engagement in order to reveal the additional information linked within them. There is also Radio Frequency Identification (RFID) and Near-Field Communication (NFC), which provide a more efficient means with which to access content, as they eliminate the need for direct line of sit required for QR Codes (and other types of Barcode delivery), although these methods are more complex to set up and maintain, and still require relatively close proximity to the content to activate engagement. Finally, i-Beacons and Bluetooth Low Energy (BLE) Beacons have also emerged as alternative solutions for mobile communication and engagement, delivering content via small wireless sensors that communicate with mobile devices via Bluetooth transmitter's to reveal their location across a range of pre-determined distances. Each of these content delivery methods produce engagement at a variety of physical distance ranges, and come with their own individual pros and cons that should be considered in relation to the content, the environment of the in which the content is displayed, and the inttended goals for user engagement.

As more of our interactions and experiences have become mediated, and delivered, in these ways, we can now 'transport most of our nexus of interactions with us wherever we go' (Meyrowitz 2005, 26), and thus the mission of the museum, or cultural heritage institution, may expand beyond the physical and practical limitations of the building, into the everyday lives of museum visitors and users of mobile content; an arena where GPS may also come into play as a means for geo-location and content delivery[3].

As seen in the section regarding mobiles and society, the mobile phone market represents a significant societal group for the museum to engage with, particularly given the increasing level of user numbers in the UK alone. The 2012 Museum Association's survey of mobile engagement in museums found that only 12% of UK museums offered mobile phone apps to visitors, although the growth potential of the technology was noted (Atkinson 2012, 1). At the same time Heather Lomas conducted a survey in, *Collections access and the use of technology in museums* (2012), through which she highlighted the already rapidly increasing numbers of personal technology held by museum visitors. The data gathered revealed that approximately two-thirds of respondents own a mobile phone, while the other third are now in ownership of a smartphone. In the five years since Lomas study, this figure has advanced significantly, and now in the UK more than 70% of the population are owners of these devices (Ofcom 2016), meaning that museums can utilise the mobile network to configure their digital content both online and on the

[3] GPS is rarely an appropriate method through which to deliver mobile content within the museum. The GPS receiver relies on continuous signal transmission from several satellite sources, so physical barriers such as thick walls can cause significant signal interference.

museum floor into a portable communication device which employs textual, audio, and visual through videos and imagery (Droitcour and Smith 2016, 78), thus providing layered information and rich media (Kelly 2014) and a convenient means for exhibition narratives to accompany visitors while on the move.

This convenience has had a great deal to do with synthesizing museum practices with a mobilised society, but also developed as mobile matured as both a discourse in digital heritage and as a platform in extending its reach to audiences both within and outside of the museum's walls. ‘No longer a nice-to-have, we heard museum professionals echoing the sense that the pervasiveness of mobile made it an essential part of the museum experience, both on-site and beyond’ (Proctor 2012, 9). Writing in the earlier part of this decade, Nancy Proctor, then Head of Mobile Development at the Smithsonian Museum in Washington, noted that ‘we are beginning to see a new mobile horizon’ (2012, 11). For Proctor it had become increasingly difficult to talk about mobile as distinct from web or the in-gallery experience or practically any other media we encounter in the museum, as mobile had become the glue that connects all of these platforms - and, increasingly, all of the museum's audiences (Proctor 2012, 11). Mobiles evidently provide tangible benefits for cultural heritage, but more significantly from an intangible standpoint, the adoption of mobile is perhaps a vital move as ‘it is possible to question the ‘role of the museum when faster, smaller, interconnected devices have changed the way individuals all over the world obtain, negotiate, and relate to information, objects, culture, and each other’ (Schwarzer 2012, 220). Today cultural heritage institutes exist at a time when access to the unseen

phenomena of the world is at the push of a button. Open your laptop or your smartphone and almost any item of interest can be searched in order to access further information. Given this shift in how we as a society access and consume information, cultural heritage institutions are turning to mobile in order to work out how to remain relevant at a time where smartphone capability has redefined the way we connect to information about not only our world but also our heritage.

In line with the developmental shift in smartphone capability and the accompanying rise in digital methods of delivering and engaging with content, Matthew Petrie writing for the Guardian Online exclaimed in positive tones that '*it's high time for mobile*' (2013). Petrie makes the previously addressed point that the vast majority of people never leave home without their mobile, and explores the possibilities for museums to utilise the technology in our pockets to create engaging and meaningful experiences. However, it is Nancy Proctor's response to the article in the comments section that carried the most resonance for this researcher. Proctor is a museum practitioner with a wealth of experience in delivering museum content, who, like Tomislav Sola, as discussed in the previous chapter, feels that the museum should not employ digital technology for technology's sake. Just because mobiles are now so commonly grounded in everyday use, it does not make it an absolute fact that if we deliver mobile content people will use it. Instead, Proctor argues that, digital practices should focus 'more on content and experience design that responds to the way people use their devices and the full potential of their connectedness' (2013). Thus mobile should be utilised not solely to provide

information, but look to connect people with heritage phenomena, and with each other, in the process of interpretation.

According to Koven Smith this process is slowly but surely occurring. For Smith the ‘rapid advancements in smartphone technology of the last few years have changed the nature of mobile experiences in museums utterly’ (2012, 140), although he had previously pointed critically to the early adoption of mobile in museums, whereby users of mobiles were reduced to being a consumer of information because ‘the device does not react to choices the user makes, nor does it respond to the user's input’ (Smith 2009). These forms of mobile media such as the traditional audio tour, the cellphone tour, the podcast and similar downloadable content are typically deployed in a broadcast delivery mode: primarily for one-way delivery of content from museum to consumer (Proctor 2012, 14). However through innovation and development, in both software and hardware, mobile content has moved away from the ‘greatest hits model’ (Smith 2012, 144), through which museums would adopt mobile technology to add additional narratives to their special exhibitions and permanent collections.

What we are beginning to see now are institutions that are thinking beyond the audio tour, and reinventing the museums relationship with its many publics (Proctor 2012, 15) Now ‘mobile and ubiquitous technologies are enabling users to participate, spontaneously and continuously, in activities of collection, preservation and interpretation of digitized heritage content and new digitally mediated forms of heritage practice' (Giaccardi 2012, 2) and as a

result ‘mobile is no longer constrained to a single type of experience - the audio or multimedia guide. These days it can just as easily be a game, a creative activity, a conversation’ (Webb 2012, 181). These activities are of vital importance to this discussion, but it is fundamental to recognise that the primary element of mobility in platform design is the people rather than the technology.

As seen in chapter one, engaging and interacting with the past is essential to museums, particularly in the sphere of digital heritage. When developing a mobile digital application for a museum, the concern is no different from developing exhibitions inside the museum, namely to ensure the authenticity and accuracy of the content and to foster emotion as a vector for better understanding (Dupay et.al. 2015). Today mobile apps and content are playing a role in extending the museum’s reach to connect visitors to additional learning and understanding of phenomena. ‘One of the challenges in museums is that you see lots of really great stuff, but then you have no more ways to find out information about it,’ says the American Museum of Natural History’s chief digital officer Catherine Devine (Lebber 2015), but in recognising the power of the tools we have to hand, this issue can be negated for visitors and users of museum content.

Being regarded as everyday technology, mobile media allows museums not only to create exceptional museum moments in the everyday, but also goes some way towards disclosing the largely inaccessible knowledge of the world around us that usually goes unnoticed. In accessing a range of understanding

that belong to the ephemerality of everyday life, yet conveying deeper understanding and perceptions of material culture, ‘museums may enhance the way they interpret material culture and provide richer experiences to both on-site and remote visitors' (Arvanitis 2010, 172). In recent years the emergence of smartphone applications has created scenarios where the on-site and remote experience has come together. Utilising digital technologies, curators of cultural heritage experiences have begun to place phenomena at contextual nodes of engagement, which as a practice allows users to respond to digital artefacts, scenes and narratives, and through doing so creates a new and emergent field of cultural heritage. These apps continue the tradition of mobilising the museum experience, but are different in the sense that heritage phenomena is framed in the everyday, and personal, lived environment of the user, as opposed to the context of the traditional museum space. It is in this field, and context, that this thesis develops its argument in looking at how to draw phenomena and the everyday together in order to facilitate the personal paradigm of interpretation through digital interaction with heritage phenomena.

2.3. The Mobile Experience.

The advances in mobile communication have significantly enhanced the decision making process of content creators, and the level of choice regarding where, when and how to engage with heritage content. In addition Laura Naismith and Paul Smith reveal that mobile technology can help to increase engagement with the visitor’s physical surroundings and increase the confidence, motivation and involvement of those who visit museums and

heritage environments (2005, 6). This fits well with the assessment of practices in the cultural heritage sector that argues that an emphasis on user engagement is central to creating enjoyable experiences and increased levels of involvement and understanding. By moving away from the didactic modes of presentation, mobile methods of digital heritage look set to increase the potential for exploring the various phenomena of heritage and to captivate both existing and new audiences in a fashion more related to personal preferences and learning requirements. This personalisation can be seen in tailoring content to accompany the visitor before, during, and even after the visit by linking the activities proposed in the mobile guide with other kind of information and interpretation material (Damala 207, 277), but it can also be seen in terms of generating personal interpretation and knowledge creation through activities that are activated in everyday environments outside of the museum walls.

Mobiles should not just be seen as useful items that are connected to information about the past, but as tools that are allowing our connection to heritage to happen in the now, allowing an immediacy of experience and connection to the world around us, both past and present. ‘Our interest in a museum lies in how context contributes to cognitive order and leads us toward understanding the logics and relationships of the lived world’ (Carr 2006, 13), and through museum platforms, powered by GPS, RFID, NFC and QR Codes, mobile activities have emerged in the last decade that allow us to bind these elements together. In this we see the future of how we will develop digital heritage engagement, interaction, and interpretation platforms, in living up to the statement that ‘the killer apps of tomorrow’s mobile infocom industry

won't be hardware devices, or software programs but social practices' (Rheingold 2002, xii).

Social practice has emerged as a key element in the cultural heritage agenda, with museums turning to participatory practises in order to create meaningful forms of engagement with their audiences and the communities that they represent. Within the traditional space of the museum, collections and exhibitions create sets of actions and cognitive processes that are enacted in response to, and within, specific socio-cultural contexts and within specific social relationships (Coffee 2007, 377). In the context of mobile platforms for the cultural heritage sector, social practice can be utilised to identify issues, such as gaps in existing knowledge, or a perceived dislocation from their community, and address them through the creation of resources and activities that connect users with both the institution and its local context.

Museums are traditionally treated as cultural outposts, which through time have evolved into an urban structure that often lacks a connection to its urban context. The creation and implementation of Mapps is one effective way for cultural heritage institutions to merge social practice with spatial practice in connecting their collections and phenomena to both the physical world that surrounds them, as well as their audiences. By creating affordance-driven Mapps, which seek to connect users with heritage phenomena, whilst also asking them to contribute to the interpretive record, museums can address such issues through the 'creation of contact zones, whilst simultaneously recognizing the plurality of meanings and values inherent in that contact'

(Barrett 2010, 110). Furthermore, in creating these contact zones, or nodes of engagement, via smartphones, it is possible to engage audiences in reflecting on the time-depth of the world that surrounds them, whilst also meeting the requirements of audiences that are often driven in their level of engagement with cultural heritage by a range of motivations.

Visitors come to the traditional space of the museum for a variety of reasons, including social activities. In John Falk's exploration of museum visitors he divides them into five distinct motivational categories: Emotional – Experience – Intellectual – Facilitator – Exploration (Falk 2010). While Falk recognises that museum visitors may fall into more than one of these categories, each of these motivations provides a string template for understanding how we might develop mobile activities for the public. In fact these categories also point towards another vital aspect of mobile design in the museum, as we consider the definition of museum visitors. Through mobile led activities, technological or not, the starting point must be to consider the role of the visitor. Here visitors shift from consumers of information to active participants and users of technology. Indeed, if we utilise mobile technology to its fullest, our visitors make the transition not only to users, but also become audiences and even producers (Rose 2016, 337). In asking audiences to actively participate in the process of mobile meaning making they become agents in the process of their learning. We know from cognitive psychology that we are capable of learning not only factual information but also affective (concerning attitudes, feelings and beliefs) and psychomotor (doing things) though it seems that learning results as a combination of all three components (Damala 2007, 279)

particularly in the context of mixed reality scenarios, which will be covered in more depth in the following chapter.

Here we recognise that by adopting activity-based approaches that utilise a range of physical and visual stimulus through digital platforms, it is possible to appeal to those who learn and experience best in ways that are removed from the traditional delivery of content in the museum. In *Cognition, Curriculum and Literacy*, Howard Gardner (1990) recognised that people have multiple intelligences that respond to various environments and stimuli. Gardner organised his research into seven kinds of intelligence: Linguistic intelligence, logical mathematical intelligence, spatial intelligence, musical intelligence, bodily-kinesthetic intelligence, interpersonal intelligence and intrapersonal intelligence (Gardner 1990, 36). Within the arena of museum interpretation, language and logic are the corner stones of the delivery of communication through textual information and problem solving exercises mainly because they are the most familiar and widely acknowledged. However, for Gardner society has put the first two intelligences, 'figuratively speaking, on a pedestal' as they 'if you do well with logic, you will do well in IQ tests and examinations' (Gardner 1990, 35). While schools traditionally focused mainly on three of Gardner's intelligences (verbal, logical-mathematical and interpersonal), visitors have the capability call on a broad spectrum of abilities, each of which can be utilised in the development of smartphone activities.

While it is evident that museum visitors and users of cultural heritage content have the potential to respond to heritage phenomena from a wide variety of

intellectual levels and perspectives, it is the responsibility of those in the cultural heritage sector to create activities that will provide varied and relevant opportunities for engagement, particularly in relation to the everyday, where technology and heritage can be engaged with in locations that have points of reference to our own experiences. In the Twenty-First Century museum visitors will be mobile hunters and gatherers, exploring and accessing information where and when they want it (Sinker 2012). They will also reject 'traditional forms of cultural transmission, a term coined by Gurian' (1995, 37) expecting to be involved in the two way communication process as active participants – in essence 'they will become the architects of their own education' (Kelly 2016). Therefore, if audiences are to become architects of their own learning, then in cultural heritage we must provide the tools and affordances to guide these experiences.

As the historian may use text, or the archaeologist may use a trowel, now the adoption of smartphone technology in the cultural heritage sector may allow users to uncover items and narratives of heritage, geo-located in the world around them. The potential for this is an exciting one as it allows us to consider how, as cultural heritage practitioners, we can use mobiles in order to help audiences discover, and decipher, the heritage that surrounds them everyday. 'One of the most important capabilities of the mobile phone is the way in which in enables us to interweave different activities in an increasingly fine-grained way (Benford and Giannachi 2011, 93) allowing us to engage with the public not only during a trip to the museum, or in the now traditionally targeted pre/post visit routine, but also during their everyday lives where

‘people could rapidly switch between multiple tasks, and move between leisure, work and entertainment’ (ibid). In these environments mobile heritage is developing into a new field of enquiry, not just from a professional or academic perspective, but also significantly from the point of view of pubic engagement.

In this field we can look positively towards developing the experience and role of the visitor, regardless of their intelligence model or visitor motivation, towards helping them to interpret phenomena from a range of perspectives. ‘Looking at physical evidence–paintings, buildings, documents, landscapes–and interpreting that evidence is a core skill for historians, conservators and archaeologists. It’s not a skill that is widespread in our audiences’ (Webb 2012, 186), but through smartphone adoption and development we are already beginning to see how participants of the mobile heritage experience engage with these materials in order to bring their own thoughts, emotions and opinions to the collective memory that we may all share. This is of particular relevance in place outside the wall of the museum where ‘urban environments are deeply connected to and assembled through collective memories, social relations and built structures expressed in material culture’ (Morais 2017, 1). Helping visitors see and interpret visual (or other sensory) evidence in this way is something that mobile does exceptionally well. It should form a central part of any audio or multimedia mobile interpretation, and should certainly be considered as an element in other forms of mobile experience (Webb 2012, 186) such as engaging with heritage phenomena in new spaces, both physical and digital.

Furthermore, the use of technology can potentially deliver a truly social and collaborative experience, allowing a constructivist approach in which people learn best by generating knowledge and meaning through interaction (Gammon & Burch 2008, 48). In this sense mobiles and their screens are no longer passive, but are used for people to read and react to environments. While some may show concern about the mobile distracting from the experience, it will be shown as we progress that the design of mobile platforms is becoming one part of the experience that places the emphasis on the tool, the user, and the environment in equal measure. In this sense the mobile has become, to paraphrase Marshal McCluhan, an extension of ourselves through which we mediate all of our experiences (1964, 7). Referring to technology as a medium in this context, and through looking at the development of visual practices, such as panoramic paintings, photography, stereoscopy, cinema, television, and the mobile screen, Nana Verhoeff notes the shift in emphasis from the medium as the bearer of messages, to the medium as a tool (2013, 18). In doing so the link is made between ourselves, our digital tools, and the phenomena that they may contain, to create new heritage environments for engagement, interaction and interpretation that is familiar to the ways in which we communicate with the world around us in a mobilised society. ‘The most effective interpretation strategy is born from a mix of the analog and the digital’ (Samis, 2007), and this approach via smartphones forms a symbiotic relationship between users, the digital, and the physical world in a positive and potentially meaningful way.

2.3. The Museum Without Walls.

Having looked at the development of mobile smartphones and their impact on society, as well as discussions of their potential in the heritage sector to mix the analog and the digital in creating meaningful and relevant experiences, we now begin to unpack the realization of a fairly familiar term ‘the museum without walls’ (Malraux 1953), and its relevance to this thesis. At the turn of the century museum theorist, Eileen Hooper-Greenhill postulated the future of museums by noting the potential of technology in transforming the very definition of the museum, and reinterpreting what we understand as the museum space. For her, and others such as Parry (2005) the museum in the future may be imagined as a process or experience. It is, however, not limited to its own walls, but moves a set of process into spaces, the concerns and ambitions of communities (Hooper-Greenhill 2000, 152). This imagination is now very much a reality, where smartphone applications are allowing us to formulate activities of engagement, interaction, and interpretation that operate not only in gallery spaces, but also outside of the traditional walls of the museum. In all, museums and others in the cultural heritage sector now operate in, and across, three spheres: their physical site, the online world (via websites and social media), and in the mobile space (Kelly 2014).

Essentially what is occurring is the coming of age of the museum without walls, which operates through the combination of the digital space brought about by mobile technologies, and the physical space of the world outside. The French theorist, Adrian Malraux, was the first to construct the notion of a

‘museum without walls’, and he wrote in his book, *The Voices of Silence* (1953).

> Hither to the connoisseur duly visited the Louvre and some subsidiary galleries, and memorized what he saw, as best he could. We, however, have far more great works available to refresh our memories than those which even the greatest of museums could bring together. For a Museum Without Walls is coming into being, and, it will carry infinitely farther that revelation of the world of art, limited perforce, which the "real" museums offer us within our walls (1953).

For Malraux, museums and the physical space imposed stifling limits, and the phenomena held by them was best understood and of resonance if released in a physical, and then somewhat more cerebral, context. For Malraux, ‘the easily reproducible character of the artwork would make it circulate in the city, in direct contact with its inhabitants’ (1953), a theme that media theorist, Marshall McLuhan developed when he took the argument one step further through by insisting that the mass media itself was the manifestation of the ‘museums without walls’ (1964). At the other end of the bridge between Malraux and the digital age we again find Parry, for who ‘a museum without walls stands for a museum that makes its information and knowledge available both to on site and remote visitors’ (2009). From the postulation that artefacts were contained or stifled by the physical setting of the museum, and that it is better understood in context, we have now arrived, thanks to the

nature of mass media, at a time where heritage can be viewed and reimagined in digital contexts.

From the above perspective, Gunnar Liestol explored through his work how the 'mobile driven *sitsim* platform creates situated scenarios that move us from the old tradition, where artefacts were removed from situ and placed in a centralized repository such as a museum, to a new tradition, where artefacts return to where they belong' (2012, 623). Liestol sees this practice as solving the 'centre periphery problem', whereby 'relics are removed from their native, often peripheral site, and collected and stored in central locations' (2012, 618). Liestol's 'situated simulations', demonstrate a progression in engaging the public with heritage outside traditional established parameters of the museum, and highlights an observable occurrence in 21st century heritage practices.

Both web-based apps and native mobile apps act in augmenting the heritage experience, which surrounds us everywhere, from built up urban environments to more remote landscapes. The use of mobile communication tools, the development of software, and the design of multi-platform interfaces (based on responsive design) have given rise to a conception of cultural mediation that fosters multimedia, personalized, and multisensory experience inside and outside museums by combining the discovery of physical locations (a building, city, territory, etc.) with digital resources (Dupay et al. 2015). In relation to this thesis, what we are specifically looking at is how the digitised platform of personal mobile devices is reversing the traditional paradigm of

collecting phenomena from the outside world at large, by generating an interactive landscape, comprising of digital artefacts, scenes, and narratives, in the world outside of the traditional space of the museum and in locations where people can interact with heritage phenomena as part of their everyday lives.

This kind of approach illuminates the shifting paradigms of heritage outlined in the first chapter, and goes some way to facilitating the decline of didacticism previously inherent in heritage practices. One of the issues regarding the museum is the public's perception that they control knowledge, expertise and learning, that floats above or pass through the community, and that they are not as public as libraries. These perceptions are mixed with enough reality to make them hard to dispel (Hirzy 2002, 13). What if you went to a library and they didn't let you borrow a book? This scenario would drastically alter the relationship between the public and the library. Rather than repositories for the source of knowledge that we could incorporate within our everyday lives, the library would become a fixed point to which we went to make discoveries.

In a sense this is what the traditional model of the museum is. Granted this is still a positive situation. Museums allow us access to the past, but the walls of the building, as well as the nature of the displays that are fixed on-site, frame the experience in a particular way that is different to that of mobile led curation. Thus it can be argued that the museum without walls is one that reshapes the curatorial approach of cultural heritage in order to create a new definition, or strand, of its meaning. This does not mean that the traditional

approach of the museum is moving toward redundancy, it just shows us that there are alternative ways, developed through mobile media, that produce a different type of connection between the museum and its audiences. After all, the museum is not defined by the sum of the objects it contains, but rather of the experiences that it generates. In fact there is a growing consensus that, alongside collecting and preservation, experience is now one of the highest priorities, and that mobile content is an important part of to that experience (Proctor 2012, 206).

Through creating mobile platforms that allow users to ‘carry’ the various phenomena held by the museum, what is occurring is the construction of experiences that breakdown the barriers between the visitor, the museum, and its collections. It is still not possible to physically touch or borrow the exhibits on display in a haptic sense, yet it creates a disruption that opens up a more direct connection between the user and the content on display through increased mobility and personal choice. As Proctor indicates, mobile’s disruptive power comes from its unique ability to offer the individual intimate, immediate and ubiquitous access combined with an unprecedented power to connect people with communities and conversations in global, social networks: mobile is both private and public, personal and political (Proctor, 2011). More pertinently to this study, mobiles are also enabling to use mobile technology to connect with the physical world around them in producing interactive situations that foster the personal paradigm of heritage through the interpretation of phenomena in their own everyday experiences.

However, as Henning has shown, this interaction must not be seen (or developed) simply as a visible activity (button pressing and so on), but as the invisible, cognitive links made between different pieces of information and different sensory stimuli (2006, 311). For this to occur, the technical possibilities offered by digital technologies must produce affordances that create links between the user, the phenomena on display, and the contextual environment in which it is placed. Andrea Witcomb observed that 'despite claims to the contrary, many multimedia stations continue to operate within traditional didactic frameworks' (2007, 36) and an interface such as this could serve only to provide information in a didactic fashion, thus providing 'little more interaction than that of the Victorian diorama' (Ibid). Pre-programmed and unresponsive apparatuses such as this provided little more than glass cases for the information labels to go with the glass cases for the artefacts. At this level, adding a multimedia station to an exhibit will not change the one way flow of communication and nor does it 'represent a more democratic, open medium of communication' (Witcomb 2003, 130). What is required in order to progress from this, are platforms that stimulate a response, either by inviting the user to do something, or to say something; to move from the basics of digital technology and to foster personal knowledge.

Where the basic level of digital technology allows the museum to say who they are, where they are and what they are, the potential for platforms designed for personal mobile devices is to once again invert the process in order to gain personal knowledge such as who we are, where we are, and what we are. Mobile interpretation is not about the technology, it is about the

user experience and particularly the content, and therefore museums should focus on telling a story that answers questions, creates emotions, (and) inspire a response (Filippini and Fantoni 2010). In *Planning for People in Museum Exhibitions*, Kathleen Maclean sets out that the design principle for interactive exhibits should follow three key principles which if followed should result in personalised knowledge gains in either of its guises. First it 'requires an ability to integrate communication goals (what you want the visitor to *learn*) with behavioral goals (what you want the visitor to *do*) and even emotional goals (what you want the visitor to *feel*)' (1993, 95 – emphasis in original). Learning, doing and feeling are very individual experiences and by adopting these principles the museum can transpose a much more personal form. By exploring phenomena in our own personal time and surroundings, digital platforms have moved to a point where 'users are not employing the computer as a tool for merely entering, storing, retrieving and manipulating data, but are now employing it in generating a new way of thinking' (Bardini, 2000). These approaches afford opportunities that have the potential to stimulate and involve the imagination, emotions, thoughts, and perceptions of smartphone users, in not only understanding the material and cultural paradigms of heritage phenomena, but also the contextual environments in which they are digitally placed.

Mobiles are developing mobile driven activities that offer the visitor a platform which utilise GPS capability, image recognition, and a compass, to create scenarios within a cultural heritage landscape, that resulting in 'rich scenes upon which to set a tale or a narrative, allowing the viewer to see details that

could previously only be imagined' (Refsland et al. 2007, 413). For example, 'students on field trips to historic sites, might access applications that overlay maps and information about how the location looked at different points of history' (Johnson 2010, 17). This link has been present in digital form for some time now, but 'while the capability to deliver augmented reality experiences has been around for decades, it is only very recently that those experiences have become easy and portable' (Johnson 2010, 16), and it is this development that has provided us with a chance to examine the nature of these platforms further and to think about them a little bit deeper.

In essence, the great potential of mobile heritage devices lies in their ability to make the invisible visible by revealing phenomena that once resided in a location, and therefore add greater resonance for the user in their understanding of heritage phenomena through contextual experience. However, the potential extends beyond this, as this mobilised process, delivered by existing and developing methods of digital communication, marks a significant step forward in the enhancement of relationships with heritage phenomena, not just in terms of returning heritage to its place of origin, but because it gives the user equality and privilege over rights to access and the content in a way which may suit their individual preference. By owning and taking a personal device into an environment that adopts this method, the user has in his or her pocket a device which can extend the scope and the depth of the spatial environment in a digital sense, giving greater access to information and power over its physical limitations. Digitising museum collections in this way enables the museum to 'detach objects, scenes and

people from their fixed place in time and space, and to allow them – or their forensic traces – to circulate as multiples and reproductions' (Henning 2006, 306) and at a physical level, digital representations of heritage give users access to 'items which have not survived, creatures which are extinct, the visions of great men which were never realized or even the imagination of artists and thinkers' (Fopp 1997, 146).

From a technical point of view this unearths a range of possibilities for the advancement of digital practices. Digitisation has very rapidly become an intrinsic element of heritage practices. As noted in chapter one, the desire for digitisation projects, and increased volume of digital heritage, has expanded rapidly, and projects such as Europeana, Culture Grid, and Collections Explorer, to name but a few, are currently providing platforms and encouraging museums and heritage institutions to present the voluminous collections of heritage phenomena online. However, as Mike Ellis noted at the Museum Next Conference, held in Newcastle in 2014, 'just because your objects are digital, it does not make them interesting'. If anything, it is individual perspectives, opinions, and thoughts that decide whether digital objects are interesting. Nor perhaps does digitisation, in itself, even make the items in these digital collections, phenomena, in its truest sense. We have previously discussed that the dichotomy between tangible and intangible heritage is not a true distinction, at least outside of the realms of categorisation and recording of data. In an interpretive sense, both tangible and intangible heritage share facets of one and other, and therefore become phenomena. Yet, for objects or monuments, and poems, chants or songs to

become phenomena, in a purely etymological sense, something else must occur.

What the experience requires is some form of affordance to be attached in order for the artifact to become phenomena. The term affordance was coined by the American psychologist, James Gibson, and pertains to the environment providing the opportunity for action (Gibson 1979). In recent years interpretations of the concept of affordances has become increasingly diverse, particularly in the field of HCI, where the concept was introduced and expanded by Donald Norman (1988). For Norman the term *affordance* refers to the perceived and actual properties of the thing, primarily those fundamental properties that determine just how the thing could possibly be used (1988, 9). Furthermore, affordances should be employed in order to provide strong clues to the operations of things, and 'when affordances are taken advantage of, the user knows what to do just by looking: no picture, label, or instruction needed' (Norman 1988, 9). The distinction between affordances, as seen by Gibson and Norman, is that Gibson refers to all possible actions; while Norman's definition pertains to design that fits the perception and prior experience of the user. In furthering the concept of affordance in relation to HCI comes from the work of William Gaver, who in promoting affordance as 'a useful tool for user-centered analysis of technologies' (1991, 79), also succinctly outlined affordance as an appealing approach 'towards the factors of perception and action that make interfaces easy to learn and to use' (1991, 83). In the context of this thesis, the role of affordance, as explored by these authors, creates a methodology through

which perception and action can combine to create not only intuitive interfaces, but also meaningful encounters with heritage phenomena.

For collections, or a single object, scene or narrative, to truly become phenomena, it requires interpretation and knowledge creation brought about through active engagement. It must become part of an experience, one where perceptions of heritage are formed through embodied and cognitive interaction, stimulated through affordance. From a curatorial standpoint, heritage interpretation traditionally adds context, it adds narratives, it fills gaps and it tries to compensate for the partial, for the fragment, for that which is not apparent and it attempts to rectify a (perceived) lack in visitors' knowledge (Staff 2014, 91). In the mobile-driven museum without walls it is the user, the technology, and the environment that combines to achieve this practice. Here, the process is not solely about the object, nor is it singularly about the material or cultural paradigm, but it is about how these things engender the personal paradigm; the experience provided by the mode of engagement, and the way in which that modality creates relevance and produces knowledge.

This is particularly relevant to a smartphone society as information is accessed at hand on a frequent basis. Museums no longer need to be fixed to their static position in an architectural sense, but have the potential to operate in contextual landscapes relevant to their collections, and their associated narratives. It is the assessment of this thesis that the museum without walls can help museums to extend their mission, both literally and figuratively, to engage with audiences in a way that fosters meaning making through the

opening of new frontiers for cultural heritage. Moreover, this process is of value to cultural heritage and modern society, as ‘since visitors do not make meaning from museums solely within the four walls of the institution, effective digital media experiences require situating the experience within the broader context of the lives, the community, and the society in which visitors live and interact’ (Falk and Dierking 2008, 25). For Falk and Dierking, a person’s personal and sociocultural contexts are of equal, if not greater value, than the design of media tools and the organization and navigation of the content presented (2008, 25), and thus using smartphone technology in the world outside the museum can be used not only to provide more information about the phenomena contained within collections, but also create valuable responses that may be individual to each user. In doing so the museum without walls is developing its characteristic form, yet more research is required in order to understand how users respond to these environments in order to make clear frameworks for cognitive engagement, interaction and interpretation, in smartphone-driven scenarios.

Through investigating the digital world in which twenty-first-century heritage finds itself, and the nature of mobility in relation to the museum, it is evident that the lens of development must be focused upon finding approaches that connect and resonate with users in order to develop a greater sense of understanding of the past. Given the possibilities provided by mobile tools this connection should be with both with and individual and collectively shared heritage, in the creation of new knowledge. In exploring the mobile heritage field further, this thesis recognises and asserts that phenomenological

approaches can be at the heart of solving the particular challenges set by the digital age, and can be utilised in meeting the aim of developing a theoretical approach to digital interaction with heritage that will engage audiences through smartphones in a relevant and valuable way. Therefore in the next section we will introduce the basic elements of phenomenology, before aligning these with the use of mobile heritage in the museum without walls.

2.4. Phenomenology and Heritage.

In introducing the basic nature of heritage phenomena, this work has recognised that in all forms a phenomenon is comprised of elements that can be experienced, a fact or occurrence that can be observed, or something notable which excites people's interest and curiosity. Mobile is a method through which to deliver these materials in a digital sense, while theoretically these elements are intrinsic to the concept of phenomenology as a philosophy. Therefore in this section we will look at some of the key elements that relate to this thesis, first by looking at the concept of phenomenology as a philosophy, before moving onto its role in archaeology and the also the heritage sector.

Phenomenology, in the most simplistic of terms, is the ‘science of phenomena’ (Heidegger 1962, 50). In a broader sense it is an umbrella term encompassing both a philosophical movement and a range of research approaches that focus on individuals by studying ‘phenomena as consciously experienced’ (Spielberg 1975, 3). Looking at the origins of the philosophy,

Edmund Husserl, the principle founder of phenomenology, attempted to develop a universal philosophic method, devoid of presuppositions, by focusing purely on phenomena and describing them; anything that could not be seen, and thus was not immediately given to the consciousness, was excluded (Husserl 1911/2002). The concern was with what is known, not how it is known, and thus the phenomenological method is neither the deductive method of logic nor the empirical method of the natural sciences; instead it consists in realizing the presence of an object and elucidating its meaning through intuition (Smith 2009). As applied to heritage, this philosophy can be used to encourage users to contribute to their own understanding of objects and cultures. As an analogy it is worth paraphrasing Pablo Picasso who indicated that 'in producing an art-work the artist carries the creative process half way – it is the responsibility of the viewer to complete the process' (in Worts 1995, 165), a sentiment which mirrors the capabilities provided by the interactive and immersive technologies through engagement with digital heritage.

The epistemological basis for phenomenology relies on understanding the *lived experience* as it connects to an individual's interactions and transactions with objects and the environment. The philosophy draws on the belief that human experience stems from the senses and perception of the physical lifeworld of its inhabitants. Such experience translates into meaning at various levels, whether as recognition of the material and cultural significance, or more readily in the personal sense where the experience expands into greater meaning through an individual's reflection (Wood and Latham 2009). This

experience of meaning is not simply a surface phenomenon, but it permeates through the body and psyche of participants. However, participants are able to articulate only that portion of meaning that they can access through reflection. If a participant stays with their reflective gaze, deeper aspects of the experience will begin to seep into awareness and become observable (Polkinghorne 2007, 481).

This approach toward a wider selection of perspectives is commonly utilised in the post-processual paradigm of archaeology. Also governed by post-modern influences, this paradigm of archaeological theory fits coherently with constructivist approaches to heritage as, ‘we cannot interpret people, cultures or things from the past, without first attaching meaning to them that arise from our own interpretation’ (Greene 2006, 253). It also advocates the contextual approach to the study of heritage through a relativist view of knowledge, which denies ‘fixed’ meanings that are independent of the observer and the context of observation: scientific knowledge is made by scientists and not determined by the world (Craig 2000, 172). This process encourages users to move away from what Jean-Francois Lyotard termed the grand meta-narratives deployed since the enlightenment to explain and justify the western conception of human progress (1979, xiii), and instead it asks us to view heritage through our own eyes to interpret the myriad of perspectives available to those who left us our heritage and the choices they made in the creation, use and redevelopment of heritage materials.

The archaeological approach to phenomenology applies to the use of locative and sensory based experiences to view and interpret the various phenomena associated with an archaeological site or cultural landscape. It first came to prominent attention among archaeologists with the seminal publication of Christopher Tilley's *A Phenomenology of Landscape* (1994), in which he suggested it to be a useful technique that can be used to discover more about historical peoples and how they interact with the landscapes in which they live. Tilley's argument derived from the belief that by simply looking at two-dimensional representations of a landscape, such as on a map, archaeologists fail to fully comprehend how people and societies truly related to those areas (1994, 3). Drawing on Maurice Merleau-Ponty's assertion that the body was the mediator of all existence, Tilley believes that investigators should enter the very landscape that they are studying, and use their physical senses of sight, smell, and hearing to learn more about how historical peoples would have engaged with and developed their environment (Tilley 1994, 6). Therefore the belief for phenomenological archaeologists, much like the philosophical founders of phenomenology, is that the most effective way to understand the phenomena of heritage is to go to the 'life world' or contextual site from which their field of study relates to and engage with and reflect on it themselves.

The reflective process begins here with physical observation of the contextual environment of past peoples. Taking a monument as a large example of heritage phenomena, the phenomenologist would take into account its locative setting and assess its geographical position in relation to aspects

such as practical activities or symbolic statements. The purpose of its relative position may provide many clues as to the wider significance of the monument and its role, which in turn results in revealing conceptual understanding or practical information relevant to the society or era in which it was erected. Other considerations may also come into mind such as what would it have looked like, would the landscape have been markedly different or how accessible would it have been during the time relevant to their enquiry. In short, archaeologists not only try to project and think about the 'life world' of our ancestors, but they also mentally augment the landscape based upon their own research and prior understanding of and environment or culture.

Thus far, it has been shown that phenomenology encourages participants to look at the world through an exploratory, reflective, and interpretive methodology. We also acknowledge that heritage surrounds us all, and that this heritage is made up of a heterogeneous collection of materials, both physical and cerebral, that contribute to our understanding of the past and the creation of value in the present. These values are represented not in monetary terms but in the process of heritage which allows us to engage, interpret and share what belongs to us in terms of both our personal and shared legacy. It has been identified that all things have some meaning to someone and therefore the scope of heritage materials is exponential, with no restriction on what can be regarded as heritage. This heritage is traditionally divided into tangible and intangible, however each are intertwined; in essence all heritage is intangible and the success or evocative power of each is in many ways related to the other.

Applying this specifically to a constructivist approach to heritage, as outlined in chapter one, phenomenology can be described as ‘a low-hovering, in-dwelling, meditative philosophy that glories in the concreteness of person-world relations and accords lived experience, with all its indeterminacy and ambiguity, primacy over the known’ (Wertz 2005, 175). This reflection of the lived experience allows us to examine the world around us in order to make connections and develop an understanding of various heritage phenomena, by encouraging us to look at them through a wider selection of perspectives generated by our own prior knowledge and supported by contextual information. In rejecting the reduction of phenomena to a purely visible or informational level, this approach aims to stimulate an environment where intuition can work alongside scenario based learning in order to create an embodied sense of understanding, in line with phenomenological approaches, to strengthen the personal paradigm.

At the heart of this is the key phenomenological tenet of intentionality. In applying this to heritage, we must recognise that every action of intentionality has an intended object, or phenomena, and that intention is framed by the nature of the object, its interpretation, and its surroundings. For example when we look at writing we have a literal or literary intention, where as if we look at a painting in a gallery, we must intend pictorially (Sokolowski 2000, 8). When we move our gaze towards heritage phenomena we can draw on a variety of intentions, each framed by the intrinsic nature of said example. In essence, we look with an exploratory intention, or a cerebral intention, which forces us

to deduce both the role of the intended phenomena in the past, as well as its relevance to us in the present. By doing so, we as users of the phenomenological method, can begin to construct narratives of heritage through our own sense of being, and personal interpretations of the past.

The criticism of such an approach may be driven by the belief that creations of multiple intentional narratives, which are brought about by a phenomenological methodology, will lead to a subjective approach to heritage which rejects any notion of a singular truth of the past devoid of scientific method or analysis. It may also be felt that this subjective approach will lead to a fallacious understanding of phenomena, as each individuals embodied perspective will vary from one person to another. Writing in 1998, Joanna Brück's critique of Tilley emphasised that the nature of 'being' may vary widely across time and space and also according to a number of factors such as, context, class, gender, and the numerous variations of the human body. What Brück implies, is that phenomenology can offer little more to the field of archaeology, and in turn heritage, than the most basic generalizations about the past.

In response this thesis supports the varied interpretation of heritage phenomena, by demonstrating that a subjective approach to the past can help us as individuals to understand the developments of the world from our own relational perspective, whilst also developing a richer tapestry of narratives and perspectives of history, which can be applied to heritage phenomena wherever it may be found. While the phenomena itself may provide material evidence, supported by information related to the cultural paradigm, it is the

personal element which constructs the narrative most closely associated to our own understandings of heritage phenomena. The formation of narratives is the crucial element in constructing relationships with heritage phenomena, and perceptions of the past as agents of the hermeneutic approach to phenomenology. A 'narrative is a means of understanding and describing the world in relation to agency, and in its simplest form it involves a story and a storyteller' (Tilley 1994, 32). At a more complex level it is a means of linking locales, landscape, actions, events and experiences, each of when brought together provide a synthesis of heterogeneous phenomena.

There are, however, some concerns raised by this, which lead David Carr to assert that the post-modern effect upon museums has generated a 'crisis of self doubt', which leads museums away from making 'univocal declarations' towards the dangerous realm of a 'bland superficiality, a misguided attempt to cover all bases' (2006, 6). Surely, heritage institutions, such as the museum should not begin to abandon their own interpretation, and completely disregard their belief in authenticity, in order to negotiate the post-modern effect. Carr himself succinctly asserts the balance that should be negotiated by museums when he states that 'whether object or experience, whatever the museum presents must be genuine; the stimulus must not be fraudulently contrived. It must be what it purports to be, but [crucially] the effect on visitors cannot be guaranteed (2006, 6). In line with Carr's research, and resulting statement, it is the belief of this thesis and its intended aims, that museums should utilise technology to share their narratives, whilst creating modes of engagement through which multiple narratives and perspectives may emerge. As is with phenomenology, there is the opportunity to embrace a bottom up

approach to heritage, where we move from an objective stance towards a more subjective one, which draws upon an individual's construction of knowledge; a construction that is based upon personal experiences, perceptions and thoughts.

2.5. Phenomenology and Technology.

Having considered some of the key aspects of phenomenology as it relates to the philosophy itself, as an archaeological approach, and also how it is relevant to cultural heritage, this section now looks more closely at how phenomenology is directly relevant to mobile heritage. In doing so we also will look at how both scholars and technologists have theorized the application of phenomenological methods in the realm of technology, before arriving at the conclusion, which sets the agenda for the remaining chapters of this study.

Specific references to technology can be found in much of Heidegger's work. In *Being and Time* (1927) Heidegger himself suggested that the world itself is 'enframed by technology', and that this distinct phenomenon plays a significant role in how we view and understand our world. Heidegger expressed his fear that technology (amongst other things) would move us away from truly understanding the world, towards seeing the phenomena of the world reduced to simple aesthetics. In essence Heidegger saw technology as creating 'maximum yield, for minimum expense' (1977, 15), feeling that this deterministic practical approach to phenomena, in particular artwork, would lead to the death of culture. According to Thompson, Heidegger's hope was that the enframing of the world through technology would lead us cyclically

through aesthetics, and back towards the subjectivism that aids our ability to operate ontologically in *Dasein* (Thomson 2014). In respect of both his fears and hopes, Heidegger predicted much of the thematic essence of this thesis. We have seen how heritage has been viewed, and how this has continuously changed over time based on the conditions of the age. The modernist paradigm, which represented a hierarchical determinist view of the development of western ideals, has been replaced with the post-modern paradigm, which advocates that there are many truths to heritage. In negotiating this shift, the heritage sector has increasingly turned to the influences of digital technology. The challenge here is to demonstrate how technology can reinforce phenomenological approaches to heritage, rather than being enframed by them negatively in the sense of Heidegger's fears.

A number of technologists and writers have applied phenomenology towards the understanding of our relationship with technology. In looking at the interaction between users and technology, John Searle, in *Intentionality* (1983) and *The Rediscovery of the Mind* (1991), argues that computers simulate but do not have mental states characterized by intentionality. As Searle argued, a computer system has syntax (processing symbols of certain shapes), but no semantics (the symbols lack meaning: we interpret the symbols). In this way Searle rejected both materialism and functionalism, while insisting that mind is a biological property of organisms like us: our brains secrete consciousness. This aspect of Searle's work illuminates the importance of developing platforms that encourage users interpretive qualities in fully exploiting technological platforms. His statement makes it clear that

while technology can provide us with phenomena to intend, we, as users, and as developers of digital heritage platforms, must not rely on the technology to provide the experience, but must generate experience of co-creation, intention, and embodied interaction.

Paul Dourish explores the application further in his existential phenomenology of embodied interaction. In outlining this, Dourish explains that, 'embodied interaction is interaction with computer systems that occupy our world, a world of physical and social reality, and that exploit this fact in how they interact with us' (2004, 3). This work on embodied interaction demonstrates the symbiotic relationship between society and technology. This symbiosis is one that represents the phenomenological understanding of the lifeworld, as well as acknowledging the essence of enframing as a natural tendency of a technologically determined society. In developing digital mobile maps as a means to engage with digital representations of cultural heritage and the production of knew knowledge, this essence must be recognised and expanded on in a heritage sense, to unveil the symbiotic relationship between not only users and technology, but also phenomena and heritage landscapes.

We, as Don Idhe states in the title of his book, are *Bodies in Technology* (2002), understanding our world through multiple sources of useful information in connection with our physical and cerebral interaction with the devices at our disposal. For Idhe, as with other key phenomenologists, philosophy takes primacy over science. In essence our relationship with the world, and our knowledge of self, is not determined by technology, but

through our use of things. Phenomenology is best understood and learned by entering into the doing, rather than by mere abstract study (Idhe 1986, 13), and therefore the challenge here is to extrapolate this notion of 'use with things' into a heritage context, by examining the process in action; to explore not only our uses of technology, but also how its embodied use intentionally connects us with heritage phenomena and the horizon of the past.

The question for us here is how is our life world made more relevant through the application of mobile technologies. The simple answer lies in the supposition that the pace and ubiquitous nature of digital technology is well suited to catering to a wider range of user requirements, as well as adapting to a continuously evolving heritage which is less about truths and more about concepts and ideas. This evolution in heritage consumption has led to a debate within heritage which has pitted the authentic against the digital, yet we have seen that much like intangible heritage the lines between the two are blurred, and that the collapse of physical space in this digital and information based paradigm now enables museums to re-assess their relationship with objects and collections. In such we have moved from an authoritative view of heritage to a collective collation of heritage that recognise that digital technologies can provide a myriad of experiences which is shaped through engagement, interaction and interpretation.

The resulting landscape has led to the emergence of digital heritage as a discourse of practical and academic enquiry. Technology promises to offer us more, yet what is fundamental to the continued development of theoretical

approaches to heritage is recognising that the changes in knowledge, attitudes or skills that may result from the activities of the program are more important than focusing on the technical considerations of digital practices. Central to this is the evolution of educational and interpretive perspectives, which recognise and outline how new media is shaping learning and experience in museum contexts. The perspectives outlined above illustrate the influence of post-modernism in reshaping what is valued in a learning context. Digital delivery offers lots of additional information but it also aids the exploration of heritage, acting as signposts in creating free choice and participatory learning experiences.

As seen through the study thus far, and pertinently through Heidegger's notion of enframing, a significant force in achieving these aims is the potential provided by the technological platforms of the digital age. By allowing users of content greater access to material outside of heritage institutions, these devices allow heritage materials to circulate as phenomena, in the form of digital artefacts, scenes and narratives, in interpretive contextual environments. In doing so we should be able to view heritage from a phenomenological perspective, a process that allows us to view heritage from both an informed, and most significantly an intuitive, embodied, and emotive level. In exploring this further, the next chapter will outline a framework which is enabling users to actively explore and participate with heritage phenomena, through objects and heritage environments, whilst enabling us to look deeper into our heritage from both our own constructively developed perceptions and the views of our ancestors. The result of this process is a holistic and culturally valuable approach to heritage engagement, which encourages users

to contribute to the historical record, either through creating a personal sense of how they relate to items and themes of heritage phenomena, or in a communicatory paradigm which seeks a variety of thoughts and opinions, in order to reveal a multitude of perspectives which can be linked to heritage phenomena.

When applied to the museum without walls, the adoption of mobile platforms allow us to enter spaces of heritage engagement that reveal not only the phenomena itself, but also contextual knowledge of the lifeworld that surrounds us. As Jason Farman states, people can often spend most of their lives in a particular place without knowing certain significant facts about that location. Even the events that are known are understood in a limited way. 'Context, it must also be understood, is ongoing and never settled' (Farman 2013). In line with the assertion that the only constant in heritage is change, any engagement with heritage phenomena in context allows us to, at least temporally, reshape our view of our own contextual lifeworld as well as informing our ideas of the past and the meaning of phenomena itself. In challenging cultural heritage to make phenomena interesting and relevant, it is these phenomenological experiences, driven by mobile technologies that have the power to do so. Ultimately, experience is what makes things interesting, and interpretation of that experience is what makes things relevant. As Merleau Ponty states, 'we know not through our intellect but through our experience' (1962). Our intelligence does not stem solely from the acquisition of information, but from the development of knowledge and being. As stated in the first chapter, learning is not about what we learn in terms of

facts and figures, but it is about the journey. The notion of journeys becomes important here as the emergence and development of digital technology has begun to alter and augment heritage environments, thus digitally assisting the experience of heritage outside of the traditional walls of the museum.

A phenomenological approach in itself offers valuable contributions in terms of understanding ways in which humans simultaneously view and perform cultural heritage, the importance of knowledge in experiencing cultural heritage, and the actions of cultural heritage consumers (Selby 2010, 51); yet what we propose here is that it can also be extended further to provide a valuable method in creating engaging and interactive scenarios for mobile heritage users in the museum without walls. In phenomenological research, as in constructivist approaches to heritage, it is our perception of the past that is valuable to us rather than absolute fact. Within this philosophical approach, the way in which we engage with the world provides us with cerebrally entrenched clues as to how our ancestors may have seen and developed the world around them, a development that is traced through the fragments and constructs of heritage phenomena.

Through doing so we already have not only digital tools at our disposal, but also the naturally embedded technology through which to engage with the past. By complementing our natural technologies with digital mobile devices, I argue that the phenomenological approach to the understanding of heritage phenomena is brought to the fore and can be developed further as a sustainable, engaging, and culturally valuable approach to heritage

engagement. Through the production of interactive methods of conveying heritage, instead of simply giving users the ability to browse or poke around in digital collections, we can invite them to participate, reflect and produce. Owen remarks that we are in a position to let the users of these collections leave a mark on the collections. Instead of browsing through a collection they literally become authors of our historical record (2013, 130). The result will be the real sense of heritage, the real moment of heritage when emotions and sense of self are truly engaged, is not so much in the possession of heritage, but in the act of passing on and receiving of knowledge (Smith 2006, 1). Therefore in the chapters to follow, I will look at how museums have developed mobile platforms, from both a technological and phenomenological point of view, in order to investigate how these tools impact on the production and sharing of knowledge in the digital age.

2.6. Conclusion.

The past two chapters have investigated the impact of digital technology in the cultural heritage sector, particularly from the point of view of the traditional museum and attitudes to heritage. What has been shown is that society at large, and the tools it has at its disposal, are vital when it comes to deciding how to develop strategies of cultural heritage engagement and fields of academic investigation. The digital society has grown at a significant rate towards a mobile society. Smartphones have not just changed our nexus of connections with each other in our everyday lives, but they have also continued to have a growing influence on the museum; in fact some go so far as to say they have changed museums totally. This lies not only in the fact

that they are a multipurpose tool, capable of communication and interaction, but they are also capable of fostering knowledge creation and dissemination. As a medium, mobiles can be used to extend many aspects of the museum mission and experience, and, for this study it is the way in which the message and content is received and responded to by audiences that is key.

In analyzing the literature and through experiencing the use of mobile technology in the museum, I propose that the approach to mobile should aim to increase the level in which people look beyond the historical information attached to heritage phenomena towards reflecting and thinking deeper about their role, meaning and relevance. In doing so cultural heritage professionals must look first at how to create roles for visitors in order to make them users and producers of content. By highlighting the nature of mobile tools, the context of this study as it progresses stems from the continued research and development into the use of mobile platforms that reach out beyond the physical boundaries of the museum. By placing many of their own collections and narratives of heritage phenomena at contextual nodes of engagement outside the physical space of the museum for exploration, museums and other institutions with a vested interest in the dissemination of cultural heritage are now able to do something with their digitized content that creates active experiences that merge the past in the present lifeworld of the user.

For this to be successful there ought to be strong theoretical approaches to such work, and as seen in the latter half of this chapter, the mobilisation of heritage correlates well with phenomenology as a course of developing

engagement, interaction and interpretation. Phenomenology places individuals and their experiences, thoughts and perceptions at the heart of interpretation and meaning making. As with the archaeological and scholarly work in this section I recognise that this is fundamental in developing frameworks for digital interaction that go beyond button pressing or gimmicks, toward activities that draw on the minds and bodies of participants in the process of meaning making. Together, users, phenomena, and the landscape, can be brought together in order to provide not just digital experiences but real embodied ones. In the next chapter I will explore the smartphone driven mobile landscape across the United Kingdom, in order to see the technical practices adopted by the cultural heritage sector, as well as draw together the discussion and statements thus far. This will lead to the development of a framework for cultural heritage app design, which will provide the foundations for the case studies that follow in subsequent chapters.

Chapter 3. Mobile Mapping Apps (Mapps): Exploration, Taxonomy and Framework.

3.1. Introduction.

This chapter seeks to demonstrate the digital landscape that serves to provide the body of investigation and framework for the case study chapters to come, through conducting a survey of cultural heritage apps for mobile smartphones in the UK. The opening section of the chapter will outline the key considerations of the survey, including the technological requirements for the inclusion of each application, as well as the philosophical components that draw on the discussion in the previous two chapters of this thesis. The subsequent section of the chapter will then provide the findings of the survey through a taxonomy of mobile apps, which will identify the core elements that define the use of mobile technology in relation to cultural heritage, as well as to provide a clear identification of the methods of interaction and immersion used in order to generate meaningful encounters with heritage through the mobile mapping of heritage phenomena, which this thesis terms as Mapps.

The survey reveals what these mobile experiences offer visitors in terms of creating meaningful interpretations of heritage phenomena, showing that they are an evolution of the traditional audio tours commonly used in museum practice that offer a reframing of the cultural heritage experience, that is in-keeping with the emergent and contemporary paradigm of the museum outlined thus far. The following section of the chapter will provide a summary of the taxonomic groups and their core characteristics, and guide the chapter

towards the framework of Mapps that leads to phenomenalisation. This framework, which makes up the remainder of the chapter, brings together the core themes of the study thus far in outlining a coherent structure for the design of Mapps. Recognising that Mapps generate user experiences that resonate with phenomenological approaches to heritage engagement, while allowing material, cultural and personal paradigms of heritage interpretation to emerge, the framework outlines how such an approach helps users to actively explore heritage phenomena in contextual environments, and foster constructivist-driven interpretive activities that have the potential to lead to knowledge creation and the production of new content and narratives.

3.2. Nature of Survey.

Mobile apps (Mapps), in their various forms, have been around since 2008, and have been developed for heritage engagement both within and outside of the museum walls. To date there have been a number of surveys looking at the use of mobile in museums, such as the *Mobile Survey* (2012), conducted by the Museums Association, which looked at how museums had implemented mobile into their museum mission, and the popularity and frequency of mobile use in the museum sector in the United Kindgom. However there has not yet been a survey of mobile apps that engage with heritage content outside the museum walls. In addressing this gap in the literature this chapter has conducted an extensive survey of the way in which mobile has been utilised by exploring the country both physically, through visits to a number of towns, cities and heritage sites, as well as online, through museum websites, cultural heritage websites, such as the National

Trust and English Heritage, and by looking at repositories for applications such as the app stores for both Apple and Android devices.

In looking at how cultural heritage is being redistributed, via smartphone technology, from physical collections to digital locations, this survey revealed three broad levels of engagement with heritage phenomena. At the first level digital phenomena is mapped across a range of landscapes, with supplementary information that informs the user about the nature of the phenomena and its contextual location. At the second level users are provided with enhanced options for interaction, which utilise the technical capabilities of the device to deliver a more immersive user experience, which strengthens the connection of the user to the phenomena in question. At the third level users themselves are encouraged to take part in the museological process, either through the curation of phenomena by creating personal collections of digital artefacts, or by adding interpretation to the heritage record through publication of text, audio, and imagery. In relation to this study this is valuable as it allows us to understand the evolving practice of smartphone application in relation to the museum without walls, and to develop frameworks of engagement in order to further study and develop this practice.

In order to arrive at the findings of this chapter, and to design the taxonomy and subsequent framework, this survey was conducted with a number of key considerations put in place. All apps included here are done so with the stipulation that they are available for use on a smartphone device. In some

cases the platform created for the exploration of heritage phenomena can only be used on a tablet device such as an iPad, Samsung Galaxy, or Microsoft Surface Pro, however while the term mobile, particularly in relation to museum studies, comprises tablets, as well as 'smartphones, cell phones and media players' (Proctor 2011), only smartphones will be considered here. The logic for this approach lies in the statistics presented in chapter two that relate to the ubiquitous nature of mobile phones and the smartphone society that we live in (Ofcom 2016), where digital tools of communication allow us to engage with heritage content in our everyday lives. While tablets are also considered as an 'anywhere interface' (Gervautz and Schmalstieg 2012, 26), they are less regularly used in day-to-day activities in comparison to smartphone devices (Ofcom 2016). However, this is not to say that this study disregards tablets completely. Sharing many of the same functions of engagement and interactivity with mobile phones, such as geo-location and connectivity, the activities and discussion that follow remain relevant to the development of heritage apps for both tablets and smartphones.

A second consideration for the survey was the origin of development of the app. While the main focus of this study is drawn from museological practice, it has not meant that the apps in this survey have needed to be created by a traditional museum. The emergence of the app market has seen apps developed and used by a range of organizations' in order to achieve their missions. These operations usually performed by both civic and commercial parties, in order to promote their activities, or to encourage engagement with the public. This has led to a broadening of the heritage environment, through

the positive inclusion of cultural heritage content for a range of motivations, be they commercial or tourism led. In this study the origin of the app is of less concern than the content, and so all applications containing heritage themes have been considered for inclusion. Furthermore, by looking at apps regardless of who developed them and why, it is possible to assess a broader spectrum of platforms that will ultimately be of greater value to breadth and quality of the study, which in turn will enable the work that follows to provide a broader impact on the consideration of developing mobile engagement in the museum sector.

It is also fundamental here to consider and outline what an app is in relation to this study. In simple terms, the mobile app can be described as ‘software designed for a small job or a singular purpose, to be run on a mobile device’ (Carmean 2013, 190). As seen in chapter two the wide-ranging functionality of mobile phones has resulted in this particular tool becoming something of a Swiss Army knife bursting with information, consumption, production and connection potential (Ruth 2010). As a result the term mobile has come to encompass an ever-expanding field of platforms, players, and modes of audience engagement (Proctor 2012, 12), and can be designed as games, creative activities, or facilitators for conversations. For the purpose of this study the survey will recognise many of these qualities through the taxonomic grouping of apps, with the fundamental concern being the assessment and exploration of applications that allow us to acknowledge the ways in which past, present, and future conceptions of the world compete simultaneously

within real and imagined spaces (Bodenhamer 2010, 14) through a range of digitally-delivered methods.

From a technical point of view, both native apps and responsive web apps will be considered. Device native apps are designed for download directly onto a mobile device. A common and familiar example of such an app may well be the camera on someone's phone, or your chosen social media app, such as Facebook or Instagram. Web-based applications, on the other hand, operate via a web browser. Rather than 'going to an online store to browse, download and install the application, the browser is used to navigate to a website that is optimized for use on the mobile device and offers app functionality' (Forbes 2011, 45). In recent years traditional web apps have largely been supplanted by responsive web apps. The former operates in the same way when used on a smartphone as it does on a laptop or desktop computer, while the latter, and latest, responsive version will take on a different design when opened (Wright 2017). For each option there are advantages and disadvantages. Forbes states that 'native apps have the market awareness and have been recognized as being more powerful in terms of technical features and options' (2011, 45), largely due to their bespoke nature. However this comes from their specificity to a particular device, and where mobile platforms, traditional or responsive, may not be able to provide as wide a range of functions, their malleability can be useful when operating on tighter budgets or when a project requires greater flexibility of content over a longer period of time. Ultimately the choice of whether to go native, traditional, or responsive, will be based upon budgets and other consideration for adopters, and it is important for

museums and cultural heritage organizations to ‘consider the full range of mobile platforms available to them, and not limit themselves either first or foremost to device-native apps just because they are ‘cool and sexy’ (Forbes 2011, 44). For this study all will be considered, and while the main focus of this thesis is not to evaluate the pros and cons of each option, the operating system of each app will be noted and considered in the discussion ahead.

What is of most importance is the user experience of mobile devices in turning these participants into active agents of heritage interpretation. For this the method of human computer interaction (HCI) is important to the discussion. By method we refer to activities delivered by smartphones that correlate with the taxonomic groupings of mixed reality displays that feature in Paul Milgram and Furnio Kishino’s ‘virtuality continuum’ (1994), which covers a spectrum of different forms of mixed reality from purely physical environments at one end of the scale, to virtual environments at the other (Benford and Giannachi 2011, 2). Mixed reality is crucial in aiding interpretations of heritage phenomena through mobile devices, and has been investigated by numerous researchers in HCI such as Evan Barba, for whom the hybridity of scenarios generates augmented conditions of mixed reality, which greatly influence the experience of the user. In his paper ‘Here we are! Where are we? Locating mixed reality in the age of the smartphone’ (2012) Barba illustrates the capacity for mobile technology to turn space into place, and alter what we see into deeper perceptions of the phenomena, which is quite literally at hand. The author points out that the fundamental component of traditional mixed reality is space, meaning the proper alignment and registration of objects,

physically and conceptually, within a given environment, is essential to creating a convincing experience. For Barba, the age of mixed reality is in its adolescence, and while there are still many challenges ahead, the fact that you can access content for your smartphone, from virtually anywhere, that lets you see contextualised information in place is no less than an amazing experience (2012, 935).

While some studies into mobile heritage have focused upon one particular technology, such as Ana Rita Morais' (2015) exploration of urban museums and cultural archives through augmented reality applications, this survey and study features a range of methods of HCI that result in the blending between the lifeworld of the user and the historic lifeworld represented by the phenomena collated for engagement. This rationale for the survey results in a range of audio, visual and tactile mobile experiences, each of which are valuable characteristics that fit with the constructivist model of learning discussed in chapter one. As we have seen, most museum visitors make meaning through a combination of cognitive and sensory styles, and by incorporating supporting layers of information in the form of text, images, and, when possible, tactile and aural experiences, the design of an app is able to engage multiple stimuli, creating a more memorable and meaningful experience (Visocky and Visocky 2008, 56).

These experiences will be outlined in the sections that follow, and in total 118 mobile applications meeting the above criteria have been explored to draw out the core features of apps in three taxonomic groupings. These apps are

located outside the walls of the museum in a range of different environments. These environments include all possible landscapes from urban cityscapes to rural locations across the length and breadth of the United Kingdom, from the northern coastlines of Scotland to the southern most County of Cornwall. In addition, based upon the assertion in chapter one that heritage surrounds us all, all of the time, these apps reveal the extent of narratives and phenomena that we class a heritage. Selected apps will be chosen to further the investigation, although each app will be relevant to each aspect of apps in the taxonomy provided. A full list of apps used and explored for the purpose of this research can be found in appendix at the back of this document.

3.3. Mapps: A Taxonomy of Mobile Applications in UK Heritage.

This section seeks to explore and explain the concept of Mapps, so termed by this thesis due to the prominence of digital mapping used in the cultural heritage sector when creating digital experiences beyond the boundaries of the physical museum setting. This exploration of Mapps across the UK reveals the extent to which the museum without walls has developed over the past decade, and the characteristics that have formed through the combination of both the physical and digital landscape for heritage engagement. In reference to the term developed, the considerations of the decisions and process of designing apps are not explored here in great depth, rather a taxonomic scale will be presented to reveal a typology of the three main groupings of cultural heritage Mapps. These three groups are inclusive of 1. Standard Mapps: 2. Interactive Mapps: 3. Curatorial Mapps. Each of these groupings shows a degree of development from the one that precedes

it, and through description and analysis the purpose and relevance of each type of application will be made clear in this section.

3.3.1. Common Features.

In opening this section a note must be made for the rationale of using just UK Mapps for the purpose of this study. Across the world there are many fine examples of digital maps, which place heritage phenomena and narratives in contextual locations outside of the traditional museum setting for engagement with the public. Examples include the excellent *Hidden Florence* (Italy) *Discover HK* (China) *Exploring Old Sydney* (Australia) and *More than a Mapp* (USA), and the practice shows the extent to which this practice has spread across the globe, particularly between 2010 and 2015. However, in order to understand the key behaviour's of Mapps, as the have been produced during this timeframe, it was important for the quality of this research that I was able to explore each of the Mapps first hand, and so the UK was selected due to reasons of accessibility. Furthermore, through studying these UK Mapps it became clear that the characteristics of those produced correlated well with those key examples listed above, as well as others that I have become aware of during the course of this research.

The results of the survey begin by outlining the common, or fundamental, features of Mapps. Evidentially from the title given to these applications here, the most common feature found during the survey is the adoption of mapping, both for the presentation of heritage phenomena, as well as for engagement and interaction. Maps are a common feature of heritage presentation in both

digital and physical form. This empirical study of Mapps also coincided with many journeys to museums across the country, and in these buildings of art, heritage, and culture, maps can be seen in each institution, on walls and in paper form, to guide the visitor through the galleries and collections on display. These guides act as a staple part of the museum visit and so the adoption of mapping as a digital tool has become the natural starting point for the realization of the museum without walls in the context of this thesis. While in the museum itself, maps act as a wayfinding tool, accompanying the visitor as they traverse the physical space of the museum. In digital form the map generates the galleries of display, where its smartphone counterpart replaces the glass cabinet. Here, heritage phenomena are situated in place for discovery by the user, through the adoption of various roles and techniques that will be outlined in more detail as we proceed, but first further consideration of mapping is required.

By digitally placing heritage phenomena in situ outside the walls of the museum, Mapps create a form of engagement that contribute to the reframing of heritage phenomena in praxis with their places of origin or existence; their histories. This process is natural for the evolution of digital Mapping, and as Tim Ingold, whose work is concerned with physical rather than digital maps, notes in his study of the *Perception of the Environment*, ‘places do not have locations but histories. Bound together by the itineraries of their inhabitants, places exist not in space but as nodes on a matrix of movement’ (Ingold 2000, 219). The literature on mapping, in reference to how we engage with, and make meaning through, maps expands beyond Ingold, with authors

examining how cartographic practice imposes special order onto lived experiences (Lefebvre 1991) and how maps are a referential point to history at particular moments in time (Massey 2005). The validity of these approaches is of valid interest to this thesis, as we propose that smartphones create hybrid moments where our lived experience is met with moments from the past via handheld devices. However while it is the aim of this thesis to examine the process of engaging with heritage as mapped through the use of smartphones, an exploration of the meaning of the map itself is not the purpose of this work. In this sense the map remains a resource of the tool at hand, and what is of importance here is the relationship between the user, the environment and the phenomena, and creation of narratives that emerge from this process.

For Ingold himself, mapping in itself is the creation of narratives, and has always been so in 'the way that people describe the journeys they have made, or that have been made by the characters of myths and legends' (Ingold, 2015). Ingold uses the distinction of place, as he does not believe in the term space. For him, 'of all the terms we use to describe the world we inhabit, space is the most abstract, the most empty, the most detached from the realities of life and experience' (2011, 29). Ingold proposes that mapping should be aligned with experience, to wayfind our way around the world developing sentient enrichment, and temporal knowledge, rather than moving, or navigating, from point to point accumulating information. He states that 'we are no more navigators in our everyday lives – in finding our way around in a familiar environment – than we are cartographers when we retrace these

movements in narrative. Navigation (or map-*using*) is, I contend, as strange to the ordinary practices of wayfinding as is cartography (or map*making*) to ordinary practices of mapping' (Ingold 2000, 236). Yet despite these concerns over the distinction of space, and navigating from node to node, this essence could be seen as problematic in the sphere, or spaces, of the heritage environment.

While this thesis agrees in large with Ingold's belief in temporal cognition, the definition of space and place commonly presented through Mapps is formed so that that the two are intertwined in hybridity, aligning with De Certau's assertion that 'space is a practiced place' (1984, 117). Across the heritage environment there are many traces of tangible phenomena, but there are also vast swathes of space that were once historical places, and the implementation of digital mapping devices allows us to plot and examine these spaces in order to make them into places of historical interest; to make the unseen seen, and enrich our sentient involvement with the world around us, both past and present. Furthermore, as Kevin Lynch indicates, 'nothing is ever experienced by itself, but always in relation to its surroundings, the sequence of events leading up to it, the memory of past experience' (Lynch 1990, 1). In this sense, heritage phenomena cannot be understood or interpreted without considerations of factors such as context, location, or the personal life experiences of the user. By locating representations of heritage phenomena at nodes of engagement in the form of digital objects, scenes, and narratives, these digitally-placed memories of the past are intertwined with our visual and embodied experiences of the present, in the stimulation of

new narratives that impact on our understanding of the phenomena in question, as well as augmenting our perceptions of the world that surrounds us, and the culturally-coded memories and personal meanings that they may already contain.

Mapps bring the practices of navigation and wayfinding together in contextualised situations, which combine what we see digitally and physically into personal perceptions of heritage phenomena. As James Gibson argued, in his work on the ecology of visual perception, we perceive the world along a 'path of observation' (1979, 197). The practice of digital mapping creates such paths, or trails, through connecting nodes, and this visualisation is essential in developing engagement with heritage phenomena in the digital era. These trails are common to each Mapp in the survey and range in size from six nodes around the town centre of Clevedon, that feature on the *Curzon Memories* App to the 94 nodes found across the Northern Tip of Scotland in the *Venture North* app. The purpose of each node is designed to tell stories of cultural heritage, both as individual nodes of reflection, and as a curated whole. As a result, these stories exist either as a linear narrative, taking the user through the beginning middle and end of a story, or as part of piecing together a wider selection of phenomena in a more serendipitous or disrupted fashion in order to understand a broader theme. In all, these trails, whether linear or non-linear, utilise phenomena as a basis to create the basic elements of effective story telling, which includes the delivery of communication to trigger the imagination of the user, requiring and creating at the same time an engagement with the audience (Ioannidis et.al. 2013 421). In doing so the

phenomena presented through Mapps finds its purpose in engaging the user, and defining his or her purpose and roll in uncovering the story and its units of information and interpretation.

The appearance of phenomena across all Mapps, are manifested through a variety of methods. Common to each app is the use of text and imagery to provide the visitor with clues and information to the nature of the phenomena in question, and the past activities or narratives associated with them. In this sense the digital version of the trail has much in common with a pamphlet or PDF version of the experience, yet as we will see in the taxonomy that follows, a number of methods that can only be achieved through digital means have advanced the nature of these practices. Images of past scenes, people or artefacts are present in each Mapp, providing the user with visual context for the information provided at each node. This is of particular use and relevance in the current epoch of heritage engagement, as it holds familiarity with the predominant method of engagement brought about by digital technology. As Terence Wright states, ‘in today’s media age the visual image has become the predominant mode of communication. Indeed, for most people, pictures have become the primary channel through which we gain knowledge of the world’ (2008, xi). As indicated previously in this work, the past is not real, we can not see it, nor can we touch it, but through digitally mapping heritage phenomena via mobile devices, we are provided with the opportunity to visualise the past in the present, ‘where two scripts or two normative patterns of interaction intersect, creating the potential for authentic interaction and learning to occur’ (Barba 2012, 935) resulting in intuitively

forms of interpretation that generate knowledge of worlds, both past and present.

So far we see that there are a number of core elements to be found in each Mapp. Maps are an essential component of each of the experiences provided, and the basis for all activities in this discussion. Being an essential tool for wayfinding maps provide not only the digital counterpart of the museum exhibit, but also generate the hybrid spaces and places through which users can encounter past scenes and histories. These places, when put together, form trails of engagement through which the user can traverse the heritage landscape and the myriad narratives represented by the heritage phenomena in question. These trails may exist in linear form, moving in a canonical trajectory through the experience as directed by the creator of the app (Benford and Giannachi 2011, 260) or in a non-linear fashion dependent on the users own trajectories of engaging with heritage in their daily activities. The phenomena presented at a basic level is done so through text and imagery, placing phenomena in context and creating narratives of engagement for the user, by bringing the past to the present through digital means. These features are common to all Mapps, but over the past decade a number of techniques have been applied to smartphones, and so in the following parts of this section will unpack the three tiers of Mapps as seen through those developed in the United Kingdom.

3.3.2 Standard Mapps.

As noted previously, the Standard Mapps that appear in this section are the natural successors to paper based trails that are familiar non-digital assets in heritage engagement activities. They are also the ones most closely associated with the traditional tours conducted in museums via hand-held devices. These Mapps act primarily as a guide adding additional information and imagery to sites around the country, and foster activities that are most likely to allow the material and cultural paradigms of cultural heritage interpretation to emerge, through an explanation of the tangible qualities of the phenomena presented, alongside contextual narratives. An example of such an app is the one produced by Chertsey Museum in 2013, which takes users on a series of short tours, including the historic site of Chertsey Abbey.

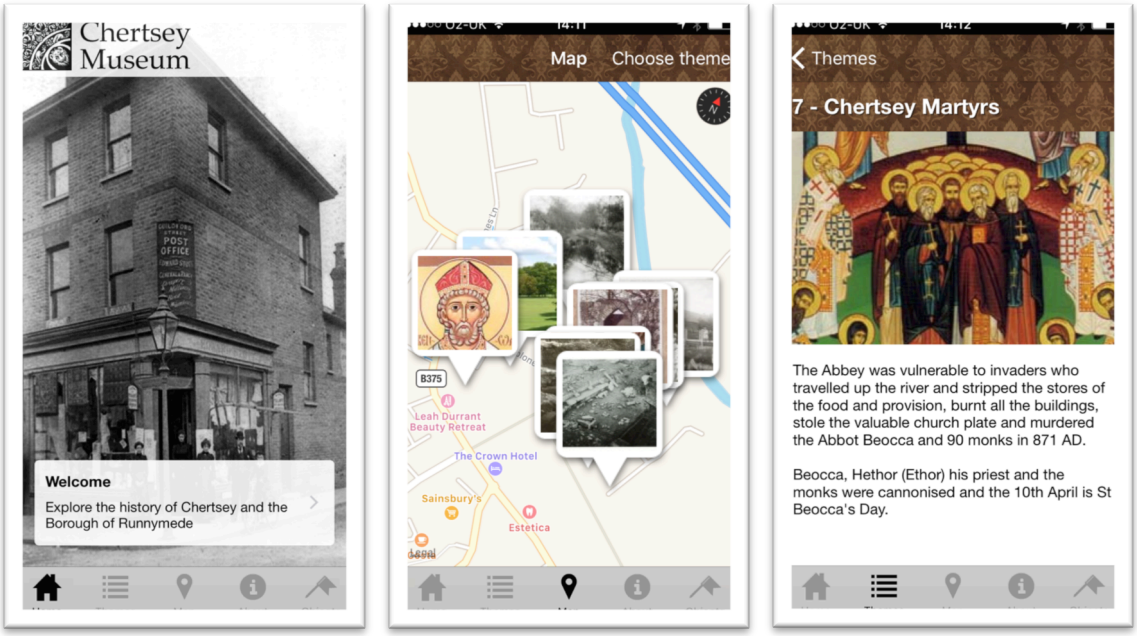


Image 1: ***Screenshots of the Chertsey Museum App, showing the distribution of phenomena, and an example of a particular phenomenon.*** **(Source: Heritage Lottery Fund, Chertsey Museum App).**

This particular trail consists of nine nodes, beginning with an introductory stop that tells the origins of the Abbey, which dates back to 666AD when it was dedicated to St Peter, and in doing so became the first religious house in Surrey. At each node along the way the history, purpose and activities of the Abbey are revealed through text, which includes the narrative provided by the museum, alongside quotes from historic sources. The story is complimented with images from the museums collection, including artistic representations of the Chertsey Martyrs, who were murdered by invaders in 871 AD, and St Erkenwald, the first Abbott of the monastery. Historic photographs are also employed to aid the imagination when exploring the site, such as photography featuring the archaeological investigation of the former burial site of Henry VI. In terms of Mapps this represents the most basic representation of the museum without walls, and shows little advancement from the common features outlined in the previous section.

One feature of the application, and the majority of Mapps in the survey, that differentiates this method of heritage engagement is the use of GPS. A common tool in contemporary navigation, GPS, or global positioning system, uses satellites to calculate the position of the smartphone in relation to the map presented on the screen. In standard apps the GPS presents an additional node on the screen, often in the form of a pulsating circle. This circle moves as the user moves, and can be of significant use to visitor to heritage locations in moving from node to node. Along with a microphone and a camera, GPS is one of the most common embedded sensors (Lane et.al

2010, 44), although neither microphones nor cameras are employed by standard Mapps.

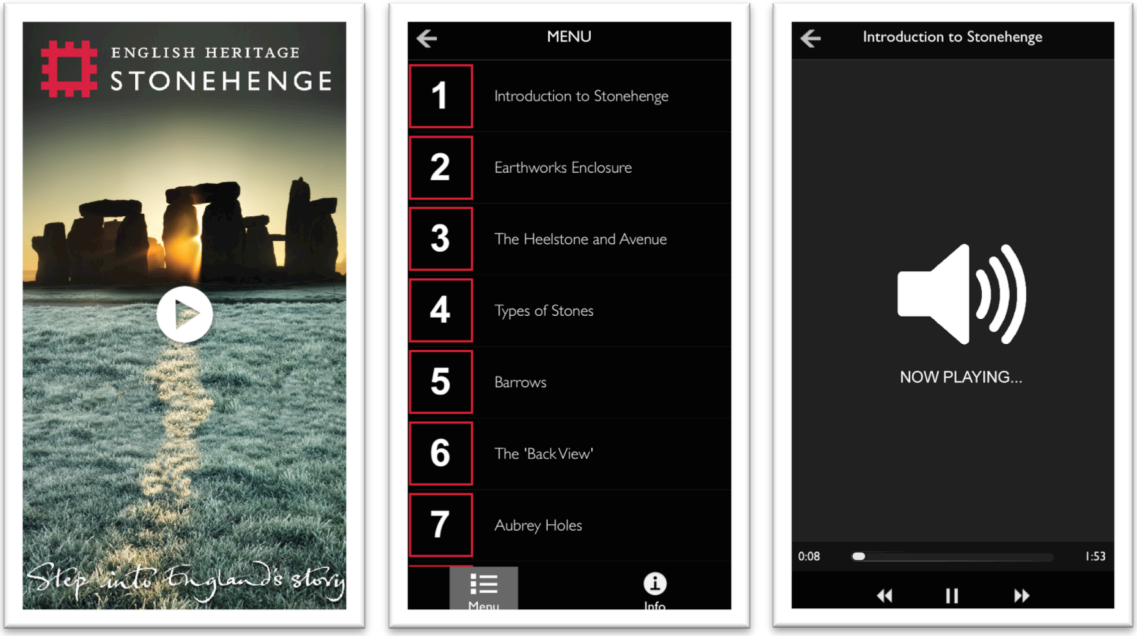


Image 2*: Example of a standard heritage Mapp.* (Source: English Heritage, Stonehenge App).

However, along the taxonomic scale, Mapps may on occasion utilise the smartphone's audio technology to listen to additional narratives either directly through the device, or via headphones. For this taxonomy audio is included toward the traditional end of the spectrum in that these activities are largely passive, delivering device to user communication in a uni-directional fashion.

A starting point for visualizing Mapps such as these can be seen through the *Stonehenge* app, produced by English Heritage (EH). This app provides visitors to the ancient stone circle a smartphone alternative to the handheld guide provided on site by EH. As one of five World Heritage sites in the EH portfolio Stonehenge is one of the most visited heritage sites in the UK, with more than 1.3 million visitors each year for the past three years (Statista

2017). This app alleviates the pressure of having to provide handheld devices for visitors to the site by adapting the BYOD approach discussed in the previous chapter. A total of nine stops are indicated around the stone circle, and a narrator explains the origins of the monument, theories regarding its history, and additional information about the maintenance of the site and archaeological investigations conducted over the years.

Much like the traditional audio guides found in museums, this approach provides an additional layer of information, but does not ask questions of its user. Not does it require any form of interaction beyond the pressing of buttons at particular times in particular locations. This is not to say that this is not a valid approach in heritage, because as a practice it would not have survived since the 1950s if it were not of value. Audio tours such as this allow individuals to receive insight, context, anecdotal information, history and provenance about heritage phenomena that enhance the experience (Smith and Tino 2008, 61). In addition, through listening to audio recordings in situ users have the freedom to move and explore, rather than be in fixed position reading a text board, or some similar interpretive device.

The experience is more embodied in this sense as the visitor connects what they are hearing while connected visually to the landscape and phenomena in view. Furthermore, being free to move around is seen to be a valued part of heritage experiences. Jeffrey Smith and Pablo Tino's examination of audio tours, *Audibly Engaged: Talking the Walk* (2008) reveals that the majority of visitors respond well to the audio programme when it is provided, thanks to

the content providing some form of structure for their visit, particularly when the phenomena in question is difficult to understand (2008, 73). However Smith and Tino also note that while users like structure, they also like a variety of methods and options when engaging with heritage on display (2008, 74). While this study is applied to audio tours inside the museum, the findings are relevant to heritage engagement outside of the museum. Fortunately smartphone development has enabled professionals and developers to advance the capabilities of smartphones to enhance user experience, and so in the next part of this section we will look at trails that have adopted a number of these techniques.

3.3.3 Interactive Mapps.

Interactive Mapps share the core features of the standard Mapps outlined above, but they also require some form of tangible input from the user in order to realise the full potential of the cultural heritage activity designed for the experience. Where standard Mapps invite the user to visit phenomena in situ and explore heritage landscapes, interactive Mapps build on this by asking the user to perform an activity of some description, thus building on the material and cultural paradigms of cultural heritage interpretation by adding a layer of personal interpretation to emerge. These activities can be both mental and haptic, and represent affordances of engagement, which alter the experience from being one where the transition of information flows from the device to the user, towards an experience where the participant performs a cognitive or tactile action in order to unearth the phenomena in question, sometimes quite literally.

In terms of mental activities these manifest themselves through affordances, which encourage the user to actively engage with the task presented by the Mapp in question. In terms of interaction with phenomena, the primary affordance is to visit a node, or unit of information, and digest the material presented. However, the apps in this section develop that notion further by inviting the user to perform an action, such as answering a question. Mapps such as *Global Treasure, Oxford Trail* do so by offering rewards (in the form of digital badges) for answering questions related to the phenomena or location in question. This however is more akin with rote learning principles, which require the participant to memorise and repeat the intended learning outcome of the node. More interesting to this study are the apps, such as RAMM's *Time Trail* (2013), which invite the user to think beyond the content provided and reflect on their own knowledge or experience. This approach elevates affordance beyond the basic transaction of answering a question and opens the user up to a wider range of responses by considering themes or concepts promoted by the Mapp and its embedded activities. In the context of heritage interpretation, this process of interaction enables the user not only to add to their existing knowledge through the consumption of information, but also to consider and answer questions and interpret the environment from their own perspective.

Moving on to haptic activities, one such example comes from a combination of GPS and the exploration of the user. Through a more advanced form of GPS, which connects not only the users location to the Mapp, but also to the intended phenomena of discovery in situ. One such example is *Story Drop*

(2013), created by Brighton and Hove's Royal Pavilion and Museums, where objects are 'scattered in the place they might call home' in order to tell stories about the people and places of Brighton. The Mapp is overlaid with phenomena from the museums collection and Organised into themes that include 'Dr Brighton's War', 'Crime and Punishment in Brighton' and 'Heritage at Hand'.

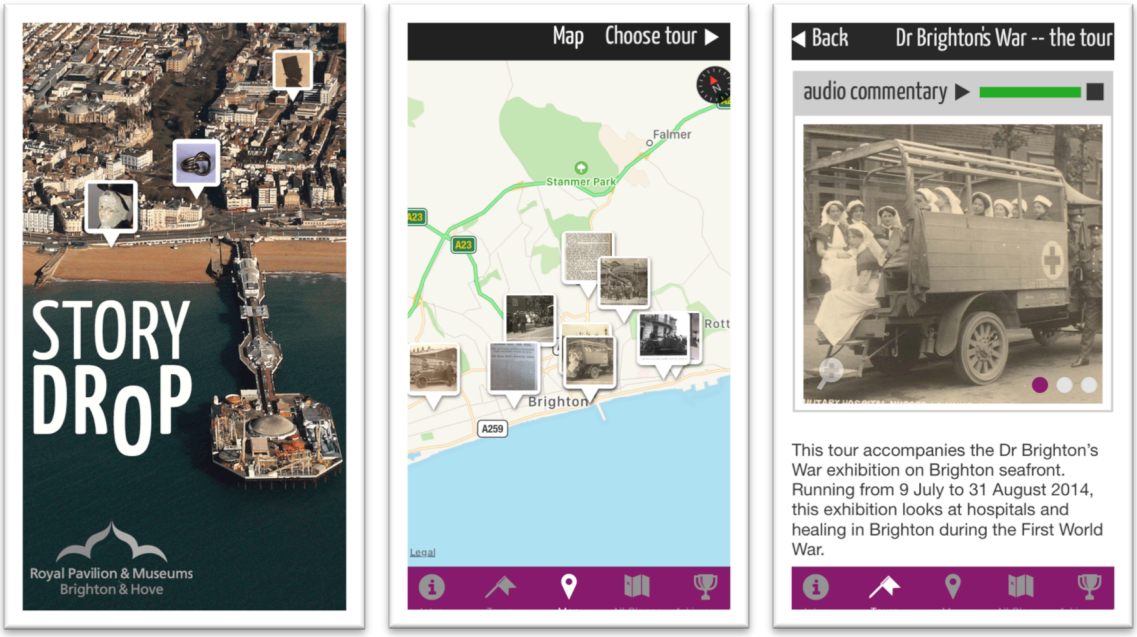


Image 3: *'Scattered in a place they might call home'.* (Source: Brighton & Hove's, Royal Pavilion and Museum, Story Drop).

Following the trail in a non-sequential order, the items on the Mapp are not revealed until the users physical location corresponds with both their GPS position and the location of the artefact. The developers liken the activity to a 'dead letter drop' (Bacon 2013), a term used in espionage to place information at discreet locations for another agent to find, although the scenario is also akin to performing an archaeological survey, and unearthing finds. Looking at it from this perspective the GPS method and content combine to create an archaeological experience, facilitating a role-playing activity for the user and

creating a sense of embodied interaction through agency. In addition through specifically locking phenomena to a particular location, the user, the environment and the smartphone are all connected symbiotically to the experience, resulting in the metaphorical excavation of the intended phenomena. In exploring the Dr Brighton's War theme a stroll down along the beach is disrupted by the appearance on the screen of several nurses on the back of a medical wagon. This action forces the user to look beyond the device and, like a phenomenologist in the field, imagine the scene that took place, and the connection between the past and the present that is indicated by the device at this location. Subsequent nodes on the trail add to this exploration that sees the device acting as an interface between imagination and experience (Morais 2015, 3), and in doing so build up a picture of Brighton, and begin to piece together the themes deposited by the creator on the trail through a blend of intangible and tangible heritage materials.

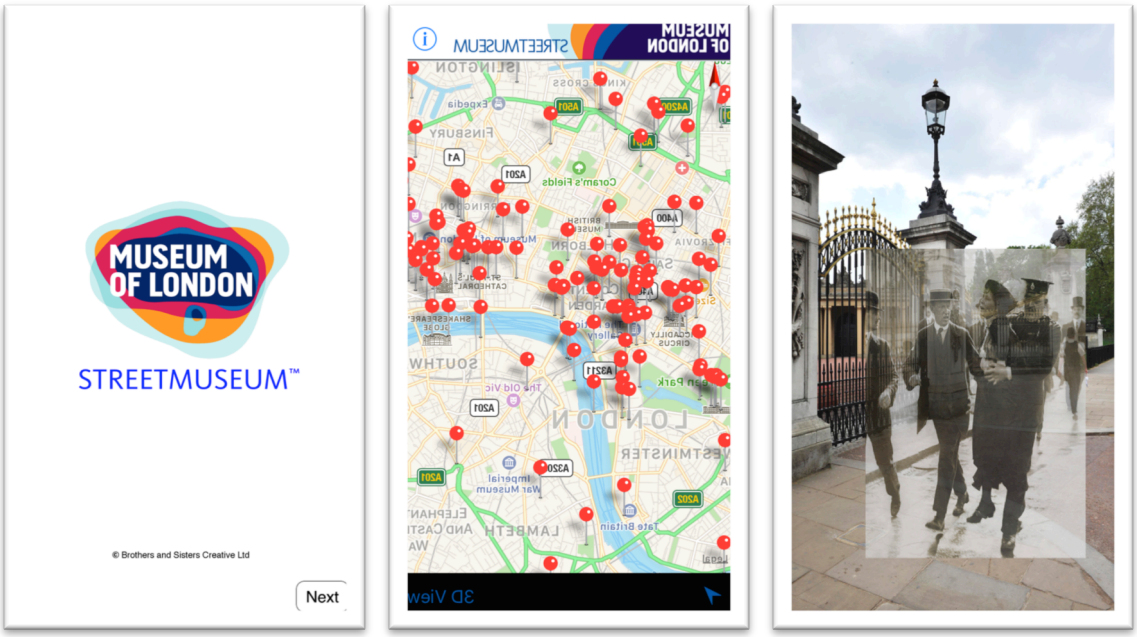


Image 4: ***Distribution of photographic phenomena and example of AR overlay.*** **(Source: Museum of London, Street Museum).**

The example provided by Story Drop demonstrates how users may look beyond the device in metaphorically excavating the past, while other methods, such as the adoption of augmented reality (AR), afford users the opportunity to look through the device (Morais 2015, 2). In a sense the use of AR in smartphone devices reframes the heritage phenomena in a literal fashion, and by using the camera embedded in the device, the smartphone becomes a tool for looking at phenomena in situ. A strong example of AR can be found in the Museum of London's *StreetMuseum* app (2010), which plots hundreds of photographs from the museum's collection at points all across the Capital of England. These points are represented across the City via red pins, which when pressed unlock the image. Through pointing the device towards the contemporary location users can overlay a scene from the past over what they can see directly with there own eyes, creating an interface for the simultaneous navigation of both on screen and off screen space (Verhoeff 2013, 5). In this context the use of AR acts as a window into the past, mirroring the cognitive actions performed by post-processual archaeologist's when re-imagining past historic landscapes and the interactions that may have occurred within them. In terms of interactivity this process provides a combination of both haptic and cognitive interaction, again demonstrating the symbiotic nature of interaction between user, smartphone and phenomena in contextual settings.

***Image 5: Screenshot depicting the video reconstructions of Gladiatorial Combat in Roman London*. (Source: Museum of London, Londinium).**

While AR brings together the key aspects required for phenomenalisation to emerge, other techniques, which appear at the farthest end of the virtual reality continuum proposed by Milgram and Kishimo (1994), reframe phenomena in a truly virtual sense. A strong example of this can be accessed via the Museum of London's second major app development, *Londinium* (2011). Building on the methods used in the *StreetMusem* app, this application guides the user round a Roman representation of the City of London. Using a mixed map overlay the app combines a modern day map of the area, which can be changed on a sliding scale to a map contemporary to the time period in question as presented by the archaeological record of the area. Like *StreetMuseum* this interactive Mapp places pins at each location, with red pins representing artistic depictions of former heritage sites, such as the Roman Amphitheatre once found where the Guildhall stands today. In addition the red pins provide access to audio descriptions of former buildings

and activities, as well as video reconstructions of events such as a Gladiatorial combat that might once have been held on the site of the aforementioned arena of entertainment.

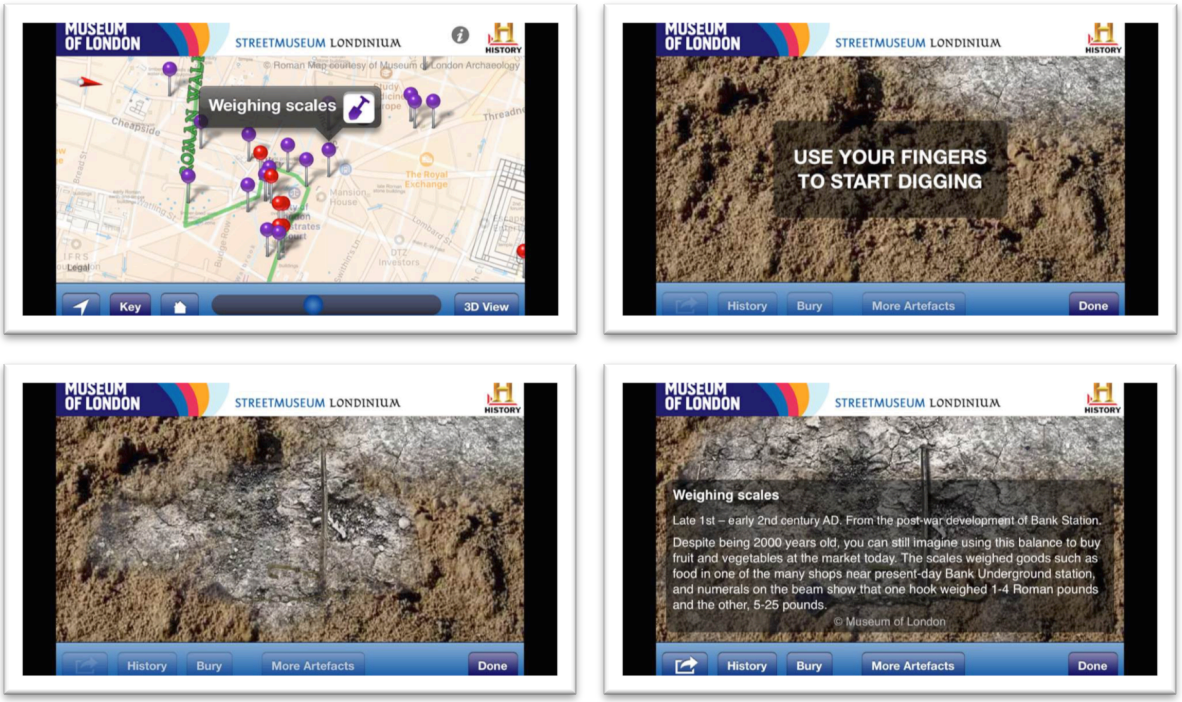


Image 6: *Screenshot depicting the digital excavation of phenomena* (Source: Museum of London, Londinium).

An additional feature, unique to this particular app, is the ability to excavate digital artefacts from beneath the virtual soil. At several nodes across the imagined Roman London, represented by purple pins, the user is invited to unearth items from the museum's archaeological collection. This occurs through either rubbing the screen of the smartphone, or by blowing into the microphone on the device. Each action results in the unveiling of phenomena, which include items such as an ornate lion sculpture, an every-day wooden bucket, or a set of ancient weighing scales. On digitally excavating these traces of the archaeological record a triumphant sounding trumpet announces

that the task is complete, and supplementary information about the material and cultural nature of the find is revealed.

3.3.4. Curatorial Mapps

Curatorial Mapps appear at the furthest end of the taxonomic spectrum designed for this study. Through the survey conducted for this chapter, the data reveals that this grouping of Mapps is, to date, the least common of all activities designed for mobile cultural heritage in the museum without walls, appearing in just seven of the apps surveyed. In defining Mapps as curatorial we are looking at two specific groupings of activity. The first of these activities is the collection of phenomena though exploration, and having the ability to hold, or share, these items digitally via the smartphone. The second of these activities represents the participatory paradigm, as outlined by Nina Simon (2010) in chapter one (p.36). Through these activities users, in their various roles, engage in disseminating their own representations of phenomena through text, audio, video or photography.

Again, like the apps before, each of the applications in this section can be described as Mapps. What sets them apart from the platforms outlined so far is the affordances that ask the user to contribute to the heritage landscape, and in doing so they are the most successful in fostering the emergence of the personal paradigm of cultural heritage interpretation. In some cases this is done directly through the device, while others connect the user to other publishing platforms such as Flickr, the online photography sharing site, and social media platforms such as Facebook, Twitter or Instagram.

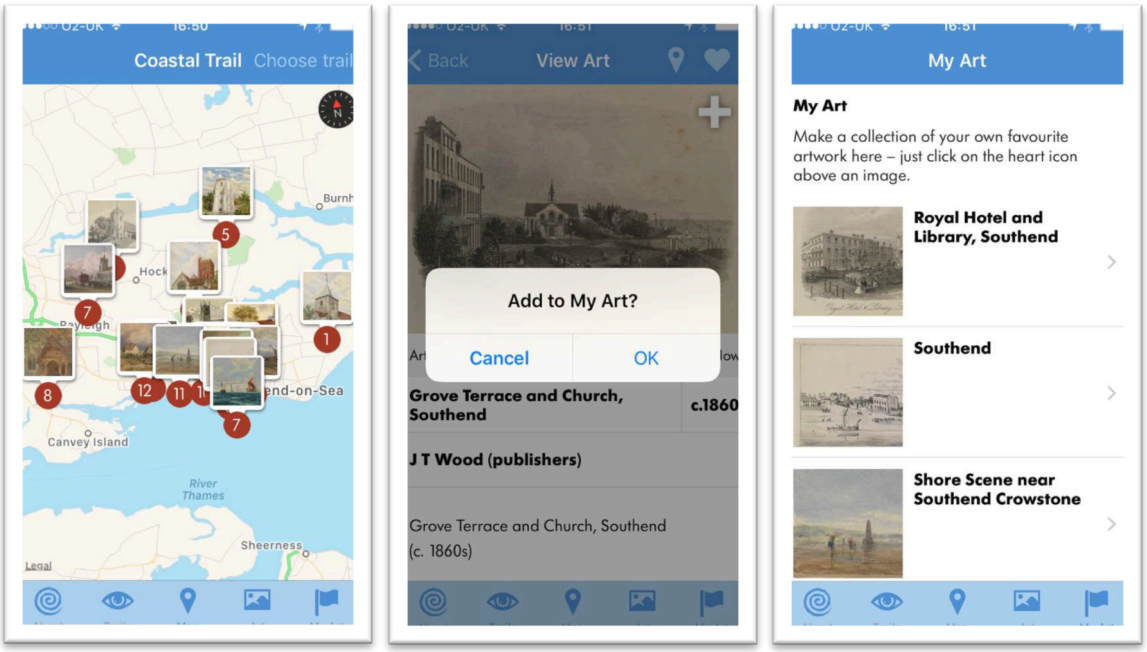


Image 7: *Example of curatorial Mapp* (Source: Southend Museums, Coastal Trail).

The *Southend Museums* app (2014), developed by Surface Impression in association with Southend on Sea Borough Council, and Arts Council England, operates by allowing users to explore the paintings and drawings of Southend and South Essex, and the places where they were created, through a selection of trails ranging from one to thirty miles. Using AR overlays the app enables the user to view both the art and the now. While it does not facilitate the function of looking through the device, this functionality still fosters a sense of time depth, and illustrates the view of the artist in comparison to the contemporary view of the user. What places this Mapp in this section of the taxonomy is the function that allows the user to curate a collection of paintings by clicking on the heart symbol in the top right hand corner of the screen to store in the my art section. This activity, known commonly as favouriting, leaves the user with a personal account of their experience and represents the element of personalisation in heritage

engagement that fosters individual choice and preference in building up our own particular collections of heritage phenomena via digital devices.

While the *Southend Museums* app allows users to build a personal portfolio of phenomena, others encourage users to participate to the historic record. The *Thames Trail* app (2013), produced by the viewfinder photography gallery in association with the Heritage Lottery Fund (HLF), generates a trail that invites users to take photographs of the river-scape and email the photos to the app's project address, which automatically posts the images to the Thames Trail Flickr Photo Stream[4]. In a similar vein, the *Melton Mowbray Heritage Trail* (Leicestershire City Council, 2013) challenges its users to share their experience through photographs or text by posting the content directly to Facebook. *Walk History* (2016) developed by Historic England is perhaps the most ambitious of all curatorial Mapps, particularly in terms of its scale. Employing audio tours of multiple locations across the country, histories of these places are added to by users. The original trails are presented by Historic England, but the creators of the app encourage users to 'enrich the list' and to share their knowledge so that Historic England 'can record important facts, or even unlock the secrets of some places' (Walk History App, Enrich the List). The additional forms of phenomena posted to these locations range from the grand to the everyday and incorporate photography and audio recordings provided by users. Many of these recordings have been added by users of the app, which inspires those who participate to look at places in a new way through their often hidden pasts. To date more than 400,000 new

[4] Thames Trail Images: https://www.flickr.com/photos/thamestrailgreenwich/

items have been added to the list making this one of the most successful participatory apps in this study in terms of wide community engagement. In all each of these Mapps represent a variety of publishing methods that encourage users to participate by adding their contemporary heritage experiences to the historic record.

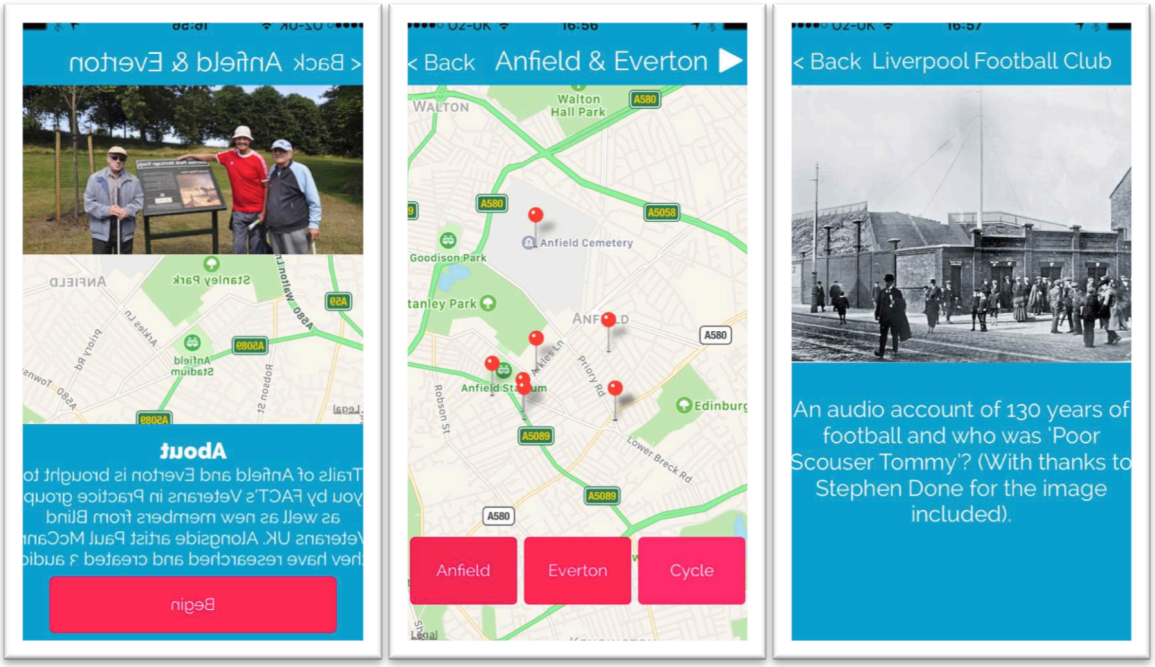


Image 8: *'The hidden histories of a place'.* (Source: FACT & Heritage Lottery Fund, Tagging Communities).

There are others though that encourages users to document past experiences via their smartphone device. The *Tagging Communities* app (2015) was initiated as a community project by the Foundation for Art and Creative Technologies (FACT) in order to collect, and geo-locate, memories and stories across six neighbourhoods in the city of Liverpool. Through engagement with the local community participants were invited to share contributions related to the past 150 years of life in Anfield, Everton, Vauxhall, Kirkdale, Garston and Speke. Each of the trails is narrated by either a single

narrator or a combination of volunteers, and in each location we are introduced not only to the narrative of the place in question, but a scanned artifact, image, or film is used to accompany the story. This use of mixed media brings to life stories that again reveal the hidden histories of a place, creating the schema of navigation or wayfinding as proposed earlier in this chapter by Ingold (p.123-124).

The participatory approach to Mapping that has been presented here is valuable to the development of heritage practices in a number of ways. For a start it may ‘provide those taking part with a range of new skills’ (Bowers 2012), while also creating a sense of belonging or achievement for members of related communities. It also moves heritage towards developing narratives that build on the oral tradition, and further integrate the bottom up approach to the creation of heritage perspectives in the post-modern museological landscape. As we have discussed previously, heritage involves continual creation and transformation. We can make heritage by adding new ideas to old ideas, and by moving beyond the preoccupation of experts and negotiate the absence of the public in social and creative activities (Palmer 2009, 8). Why these practice matter is that they ‘take us beyond the conventional boundaries of heritage. They take us beyond our comfort zone, from the special and exceptional places and things, to the everyday’ (Schofield 2014, 1), and it is in the everyday that we, as heritage practitioners, can find not only new information, or raw historical facts, but multiple viewpoints and narratives from a range of valuable sources.

Most pertinently to this study this practice of participatory engagement via smartphone devices is an important aspect of phenomenalisation and it completes the process of museums disseminating phenomena for the practice of meaning making, by allowing the user to share their responses to the affordances provided. With curatorial Mapps the creator of the app has transitioned from narrator to facilitator, providing the framework in which the user can contribute towards an understanding of the past through interpretation, or by adding to the historical record through documenting perception and thought, or knowledge and experience. Building on the assertion that heritage belongs to us all, this form of Mapping requires not only the traversal of heritage trails, or cognitive and technical affordances of engagement and interpretation, but also recognises that the public at large can creatively contribute to the heritage record and collectively shared understanding of the past.

3.4. Delivering Phenomenalisation through the use of Mapps.

The terms and applications discussed in the preceding sections can be used both as an overarching guide for the design and interpretation of Mapps, as well as a framework of investigation for the effective design of Mapps in cultural heritage. It has been outlined how smartphones are currently being used in the process of mapping heritage phenomena, but as technology moves so quickly, and mobile devices are updated (or become obsolete) more than any other medium (Farman 2012, 1) it is important to build theoretical frameworks that privilege practice over specific devices (ibid). This

section outlines the core components for the design and study of mobile Mapps in the cultural heritage sector.

Through the taxonomy we have seen that museums, and other organisations with an interest in sharing their cultural heritage phenomena, have adopted smartphones as a way of reframing their collections within contexts relevant to their point of creation, existence, or discovery. For cultural heritage practitioners this fosters the re-imagination and re-interpretation of collections, in ways that engage with audiences in contextual locations that resonate both with the history of the phenomena in question, as well as the experiences, knowledge and thoughts of the user. The cultural heritage landscape, including the thematic and chronological displays of traditional museology, represents a palimpsest that comprises multiple layers embedded within history (Magnenat-Thalmann & Pappagiannakis 2006, 428), and when digital phenomena is combined with this landscape the act of phenomenalisation emerges as a hands on, minds on, and embodied interaction that allows user to digitally and metaphorically excavate these layers of the past with the support of smartphone devices.

From this perspective of the users experience, Mapps produce phenomenalisation by creating pathways of engagement through the ‘invisible infospaces of everyday life’ (Morais 2015, 3). Along these pathways various phenomena are placed at nodes of information that enable the user to experience digital heritage from a perspective akin to what can be described as a digital archaeologist, whose practitioner’s utilise digital technologies in

the study of historic landscapes and past human societies through their material remains. In this field, and all forms of archaeology, the role of the practitioner is to investigate these remains in order to provide narratives that support an understanding of heritage phenomena and the society and culture that they came from. To achieve this the archaeologist has many tools at their disposal, including, for example, Geographic Information Systems (GIS), statistical programs, databases, Computer Assisted Design (CAD) and of course the hands on archaeologist's closest friend, the trowel. Through using these tools the archaeologist literally digs up the past, moving through the stratigraphic remnants of past culture, and unearthing items for interpretation.

However, in the field of digital archeology, a technological approach is 'more than just a tool - it can inform all levels of research from excavation to interpretation to presentation' (Meyers, 2011). These research processes aim to reconstruct the past and create spatial and chronological records that are similar to the digital display of heritage phenomena presented by Mapps. While users do not physically dig up the past, the phenomena that is digitally placed upon the map allows them to explore the landscape and to uncover remnants of the past through their smartphones. In this sense the smartphone is the digital tool at the users disposal, which allows them to metaphorically excavate the past, and to learn more about the history of a location, and its relevance to the phenomena on display.

Through the uncovering of phenomena across a range of nodes we begin to see the connection between this form of digital interaction and

phenomenology, both as a philosophy and a form of archaeological methodology. In reference to the methodology of archaeology, this practice draws from the school of post-processual archaeology (Tilley 1994, Johnson 1999, Thomas 2000, Hodder 2001), which differs from digital archaeology in that its focus is on embodied interpretation rather than the recreation of the past. In relation to this practice Michael Shanks describes post-processual archaeology as a 'cognitive archeology of the mind' that draws from the evidence as presented to us in relation to the landscape, thus formulating the 'subtle exploration of the range of possible meanings' (Shanks 2008, 134). For Shanks archaeology is not pure science, but a 'mediation of past and present rather than a discovery of what happened in the past' (Shanks 1996, 21), and this is precisely what happens when archival materials are experienced as part of everyday practices (Giannachi 2016). In this context, smartphones are used to display heritage phenomena in relevant locations by presenting phenomena at nodes of engagement that frame the landscape for heritage exploration. These nodes display not only the phenomena itself but also the archaeologists' or curators' interpretation of the item, through which a smartphone mediates the process as the user explores from node to node, in order to foster connections through data and make associations between locations and phenomena, as well as forming perceptions of the past in the present.

This process of digital immersion, which I term as phenomenalisation, brings together the lifeworld of the phenomena, as presented by the Mapp, and the lifeworld of the user in the context of their use of the tool in their own

contemporary surroundings, in order to create and active form of digital heritage agency where the user is able to learn about how the phenomena is intended to represent the past through both the material and cultural paradigms of cultural heritage engagement, whilst also interpreting the phenomena or theme in question from their own perspective in keeping with the personal paradigm of cultural heritage interpretation. From a historical and archaeological perspective, agency has been described as the way in which societies' structures inhabit and empower agents, those agents' aims, ideals and desires (Dobres and Robb 2000, 8). Phenomenologists use this methodology to interpret, amongst other things, the material, cultural and personal paradigms of human existence, and when engagement with phenomena is applied through mobile technology, the user themselves becomes an agent in deciphering the clues presented through mixed reality driven environments.

This process can be described as 'active engagement with experience' (Gammon 2003, 2), 'which is precisely what people do when they want to make sense of the world' (Ibid). Mapps permit, and promote, the user to venture and disorient, somewhere between the virtual and the physical, through an effort to interrogate the conception of spaces and places that no longer exist, in scenarios that simultaneously alter our notions of both the past and the present (Morais 2015, 7). This practice of active engagement with heritage phenomena is also resonant with the free choice learning paradigm (Hooper Greenhill 1999, Falk and Dierking 2000, Gammon 2003,) outlined in chapter one, whereby museum visitors, and in this case smartphone users,

are able to engage their curiosity through applying themselves in transforming ‘information into the active construction of knowledge’ (Hein 1998, 35). This process fosters both the personal and participatory paradigms of museological practice as described by Simon (2010), and is further enhanced when users are invited by the app to communicate their own ideas knowledge and creativity, thus adding an additional layer of interpretation that extends the narrative of the phenomenon in question.

The Mapps that are the most successful in facilitating phenomenalisation are the interactive or curatorial platforms, as defined by the taxonomy presented previously in this chapter. Interactive Mapps do this by developing the role of the user towards a form of active heritage agency. This is achieved through the provision of affordances, which help to clearly define the role of the user, and the purpose of the engagement. While it has been proposed here that the use of smartphones places the user in the role of the digital archaeologist, the survey of Mapps presented here revealed that there are a number of additional roles that may be encountered and performed by users as agents of heritage interpretation. Standard Mapps act primarily as a guide, enabling the user to engage with phenomena on location. In this sense the user is actively engaged with the presentation of phenomena and the links between the interpretive content provided and the heritage landscape. At a primary level this approach links the contemporary lifeworld of the user to the historic one as represented by the schema provided, however the inclusion of roles and affordances through interactive Mapps actively encourages the user to

reflect further on the purpose of the activity and the meaning of the phenomena on display.

Interactive and curatorial Mapps build upon the guide approach by asking users to perform actions that promote interactivity, both through the technical features of the smartphone, or by making considerations about the phenomena or environment in question. What curatorial Mapps do is add an additional level to the exploratory and interpretive process by enabling users to create their own collections, or to add further information to the heritage record. In contemporary museology curating is no longer seen as an act that is confined to that of the specialist, but is increasingly used across the sector to describe an individual assembling a group of things, be that physically or digitally. This is particularly pertinent in relation to digital heritage interaction where the tools of our time have increasingly influenced the way that we use platforms not only to make meaning but to express it through engaging with archival materials (Giannachi 2016). This process is also resonant with the participatory paradigm, not only in the sense that people are actively involved in the process of curation, but produce added value in the production of 'social objects' (Simon 2010) through 'cultural creativity' (Shanks 2008, 142).

Drawing on the discussion so far it is possible to identify the significant elements of Mapps that support phenomenalisation through the practice of using smartphones to create interactive scenarios that lead to the personal interpretation of heritage and the creation of new phenomena. As a starting point the creation of Mapps distributes digitised heritage phenomena of varying forms across the landscape. This distribution of materials creates

nodes of engagement that provide a range of visual, textual, and audible information to enable smartphones to produce a symbiotic relationship between phenomena, the environments, and the user. With the tool at hand, these distributed and disrupted environments create hybrid experiences where our own lifeworld is blended with the expressions of the past, in order to nurture interpretive scenarios that have the potential to transform the transmission of information into knowledge production.

The method adopted in order to generate new knowledge is the presentation of affordances, each of which relate to agency and activity, akin to the practice of digital archaeology with an emphasis on phenomenological interpretation that draws from the embodied experience of the user, and the notion that technology allows us all to be archaeologists. These meaningful interactions are intended to lead to the productions of experience and memories, where through Mapps interfaces are made mobile so that memory becomes attached to places again, revamping the ancient topos with an update (Verhoeff 2012, Giannachi 2016). Further developments of Mapps also afford curatorial opportunities, utilising publishing affordances to enable users to contribute to a shared record and understanding of the past, and in doing so fulfill the full spectrum of the phenomenalised model of digital heritage interaction.

3.5. Conclusion.

The aim of this chapter has been to illustrate the key behaviors of Mapps as used in cultural heritage across the UK. In doing so we have created a

taxonomy which shows that Mapps are more than just audio packages reframed, in that they provide the tools for users to look at, and respond to, heritage phenomena through a range of methods and from multiple perspectives, each of which allow material, cultural, and personal narratives to emerge. Standard Mapps provide the template for producing phenomenalisation by crating digital cartographies that incorporate a wide array of heritage phenomena, through which the unseen becomes seen, while in some instances audio recordings add rich narratives to accompany the user on their trail. Interactive Mapps then develop the practice further through a range of technical tools and affordances, which encourage users to look both beyond the device as well as through it. These platforms act as an interface between imagination and experience encouraging users to explore the past and assimilate narratives through representations of phenomena as mixed media environments. These activities foster the role of the user, by requiring of them that they perform actions that lead to the metaphorical, and in some cases digital, excavation of phenomena.

Finally, curatorial Mapps enable the process to come to a holistic conclusion by providing users with the opportunity to fill in gaps in the recording of our shared heritage, or add new interpretations based upon thoughts, feelings, knowledge or experience. This assessment of the field has resulted in bringing together the fields of museology and archaeology in order to present a framework of Mapp development that can be assessed in the following chapters. Therefore the next chapter will focus on the nature of interactive apps, and in doing so will analyse in more detail the way in which Mapps

foster the role of the digital archaeologist in making connections between phenomena and the environment, both at individual nodes of engagement, and across the landscape generated by the platforms in question.

Chapter 4. Investigating User Engagement with Interactive Mapps.

4.1. Introduction.

As seen in the previous chapters, across the UK museums and cultural heritage practitioners have utilised digital technologies to expand not only the boundaries of the traditional definition of the museum, but also to facilitate visitors to become users of content in digital spaces that augment the physical world around us. Having outlined examples of this particular phenomenon, as it relates to smartphone-driven digital heritage, through the taxonomy of Mapps and framework of development in the previous chapter, this chapter now seeks to investigate the way in which users respond to heritage phenomena, in the form of digitised objects, scenes and narratives, in the context of the historic and contemporary lifeworld of urban areas, through a more detailed analysis of interactive Mapps. The key purposes of this chapter are to explore the nature of interactivity through affordance (Norman 1988, Gaver 1991), as presented to the user through a range of interactive delivery and interpretive methods, as well as to demonstrate the aspects of digital and metaphorical excavation that, this thesis argues, derives from engaging with such practices.

The case studies chosen for this purpose each use a number of different of mixed media methods in order to produce phenomenalisation, and follow the auto-ethnographic and ethnomethodological approaches outlined in the introduction to the thesis. The first of these case studies focuses upon the ‘Walkabout St Ives’ app, which uses a combination of audio recordings, historic images and film to enable users to explore the historic Cornish town.

Moving from a picturesque town on the UK's Southwest peninsula, the next case study turns its attention to the Capital City of the UK, London, by looking at the Museum of London's '*StreetMuseum*' and '*Londinium*' apps. Each of these Mapps, as referred to in the previous chapter, utilise the museums photography and archaeological collections to blend the past and the present through the use of augmented reality. The final case study in the chapter turns its attention to the Royal Albert Memorial Museum & Art Galleries' (RAMM) '*Time Trail',* which was developed by the museum in collaboration with Gabriella Giannachi from the The Centre for Intermedia and Creative Technology at the University of Exeter and 1010 Media as part of the research and development hub funded by REACT-HEIF in 2013. Finally the chapter will conclude by drawing together the key findings of the case studies, taken from the auto-ethnographic contributions to the chapter, and ethnomethodological analysis of participation that I conducted in researching this chapter.

4.2. Walkabout St Ives.

The aim of this case study is to explore the Cornish town of St Ives in order to make connections between the past, as presented by the *Walkabout St Ives* Mapp, and the present, as it is experienced first hand. Unlike the case studies to follow in this chapter, which draw on the experiences of multiple users and user groups, this particular case study is presented through my own personal experience of using the Mapp. Heading to St Ives with no particular preconceptions of the history or heritage of the town, this allowed me to be initially guided by the platform and its content in discovering the heritage

narrative as presented. It also presented me with the opportunity to take on the role of a user in interpreting the material, cultural, and personal paradigms of heritage through smartphone driven interaction and mobile affordance.

Winner of ‘best app’ at the 2013 media innovation awards, Walkabout St Ives is a location aware app for iPhone and iPad, developed and launched by Penwith based company, Awen Productions. This project was developed in collaboration with the support of Creative England, South West Film and Television Archive, St Ives Memory Bay, St Ives Archive Study, Penlee Gallery and Museum, The Morrab Library and Belgrave St Ives. Described as a ‘cultural feast for your eyes and ears’ (Awen Productions 2015), *Walkabout St Ives* is advertised as ‘a perfect companion to your exploration of the town and its history, and is full of rare archive film that you'll want to return to over and over again’ (ibid).

The Mapp is location-aware, and uses a mixture of archive film, art, photography and storytelling to explore the Cornish Towns social history and cultural heritage. The platform uses archival film footage from as early as 1904 in order to bring to light moments in history located around the town, and, as with all Mapps, these varied phenomena are digitally situated in various locations across the landscape. The stated aim of this particular project was to transport users back in time to discover such things as, how men used to pull the lifeboat along Wharf Road before machinery, what the harbour looked like when fishing was a thriving industry, and how people in the 1930s used to live in Downlong. The project utilises Naomi Frears, and

fisherman Christopher ‘Bish’ Care, to guide users on their journey, by sharing their memories and stories from living and working in this famous Cornish town.

From a technical point of view, *Walkabout St Ives* is designed for use in two ways. The first, walkabout mode, is a heritage trail, taking in the sights and sounds of the whole town as you walk about. There is both a visual guide and a custom GPS map to help you navigate to the next location of interest, or you can just wander, or way-find, where you will. The second method, browse mode, is a virtual tour, where users can browse through the films at home, and see the locations on the map without actually being there. In this case study, I travelled alone to the town of St Ives, to explore its heritage and phenomena using the app in walkabout mode. In order to test the nature of phenomenalisation as it pertains to this Mapp, I go on my adventure without any pre-conceived notion of the history or character of St Ives, other than my knowledge of its location, and the fact that it has been renowned as an artistic haven for painters for many, many years.

The app is a direct experience of phenomenalisation that takes users on the kind of journey, discussed previously in the thesis, which blends heritage phenomena, in the form of historical narratives, videos and photography, with the users experience of the current landscape and environment. Through this, participants of the trail are provided with a window to the past, which reveals the changes and continuity in the physical landscape. Played out from a material point of view, this allows us to see first hand how the lifeworld of St

Ives has been shaped in a technological sense. Particular buildings, cars, and peoples fashions are the notable differences, yet much of the architectural design, the street layouts, and the infrastructure of the town have remained the same, or indeed very similar to the content displayed via the Mapp. It is within this parallel view of past and present lifeworlds that the user is able to explore the living heritage of the town, immersing oneself in a hybrid environment. These material differences are, at a primary level of experience, the most prominently observable phenomena, yet what underpins this experience are the cultural and personal narratives provided by the content on the app.

At each of the 24 nodes on the Mapp the user is introduced to the heritage of the town, and the aspects of that heritage that is most pertinent to the aims of the project developers. The principle aim was to tell the story of the town, and to take users on a journey through the past in the present, using the content of the Mapp to help users navigate their way from node to node. The selected phenomenon for each node relates to the history and heritage of the surrounding location, and while each of the nodes are numbered, the narrative of the trail is structured as such that it allows for users to visit each location in any given order. In terms of smartphone use Nanna Verhoeff considers navigation as the guiding principle in how we interact with screens. For Verhoeff ‘Navigation is an active engagement, keeping an eye out for where to move or what to do next’ (2013, 18). When related to Mapps this navigation can be explained to operate on two levels, both technologically and physically, with the Mapp indicating to the user the navigational scheme of the

content, as well as indicating the nearest nodes of engagement to explore. Exploring each of these locations generates phenomenological encounters with digital heritage, as it encourages us as users to act as both witnesses to the past, as well as to reflect on the present, whilst also creating scenarios that give meaning to the phenomena that is displayed. For example, St Ives is synonymous with two particular things: fishing and art, and it is these traditions that underpin much of the narrative presented through the experience. Indeed, it is these aspects that open up our senses to the cultural and personal paradigms of St Ives heritage. At one particular node of engagement, as a user, I am introduced to The Sloop Inn, which is believed to date from the 14th century, where it is told via the content displayed that 'everyone drank there: Fisherman and Artists… and they still do'. While the information given is brief, the video shows the sloop, hardly changed in its appearance, in a video clip from the 1970's that reveals the still nature of these phenomena from a visual perspective. As part of the experience, I venture off from the trail and go inside to discover that the statement regarding the Sloops patrons is indeed true, as artists, fisherman, tourists and locals all create a contemporary experience of a deeply rich structure of heritage phenomena.

The combination of the digital information and my contemporary lifeworld experience informs my understanding of this place as a social hub, both now and in periods of the past. My own perceptions of how this establishment would have been in the past is driven by my constructivist-based learning experiences of heritage and culture, as well as the contextual knowledge

provided on my journey so far. Conversations, like time, will ebb and flow here, the topics of these dialogues all-transient in their nature, with subjects driven by current affairs and personal lives. I speak to one chap who has been living in St Ives since the 1940s, and he speaks to me about how the town has changed over the decades, a theme that is present in much of the Mapps narrative.

It becomes apparent that one of the major changes that have evolved has been between the town and its relationship with the sea. While there is still a strong fishing community in St Ives, both my conversation with my newfound friend, as well as the content of the Mapp, shapes my personal understanding that the socio-cultural nature of the town is much altered in the present. St Ives was once a hustling and bustling fishing town, and the app augments the script of my visit to the contemporary environment by playing sounds, showing images, and relaying videos of the paradoxical heritage environment that once played out around where I stand. Journeying to the Fishermans Lodges, the scene that is set in my contemporary lifeworld is a quiet and peaceful one, but I am already aware that this has not always been the case. At the Fishermans Lodges, the narration provided by ‘Bish’ guides my eye towards the remaining lodges, of which there are now only three, and talks of how these buildings were central to the working and social life of his ancestors. The video that plays here supports his narrative, as well as my phenomenalised sense of the location, by showing a selection of scenes and events in early film footage and photography. Here a girl feeds the birds, a

woman paints the gathering workforce, while men work the nets on the quayside.

Positioning the phone towards the location of the events portrayed in the film created what Liestol & Morrison would describe as an ‘indirect augmented reality’ (2015, 211). Seeing the film on the phone screen in correlation to the place where these events occurred allowed me to witness the historic lifeworld, and to see the past, at least in a phenomenological sense. The narrative and film combine to create a sense of past events and the cultural paradigm of the phenomena presented. Putting down the phone for a time, and looking out across the harbor my personal knowledge of this place is generated through my perceptions of my location, my thoughts and surroundings, and the digitally driven content that I have just engaged with. My perspective of St Ives is driven by the narratives, yet my personal knowledge is driven by enquiry; what would it have been like to live here in the period presented, what conversations would have occurred in the places that I have encountered. Of course, outside of the narratives provided, I cannot know for certain, but as I traverse my way through the trail as a whole, I continue to wonder. My digital interaction thus becomes a cognitive one, and this interaction is continually driven in the hybrid meeting of past and presented representations of a location, which has been constructed through the phenomena displayed via the smartphone, and the symbiotic relationship between the Mapp, St Ives, and myself.

4.2.1. Summary.

This brief observational case study has illustrated a number of the core themes of phenomenalisation from the perspective of the author, namely the meeting of the past and present lifeworld as created by the use of multimedia narratives on a mobile platform, and the creation of personal knowledge through experience. Having arrived in St Ives with no preconception of the towns heritage the navigational properties of the Mapp not only revealed a range of phenomena in digital format, but also provided affordances which encouraged me, as the user, to interact with the world around me in order to metaphorically excavate aspects of the towns architectural, social and cultural heritage. The mobile and hybrid interface of the mobile screen of smartphones allows for a connection between the here-and-now in the present, its traces in the past, and the future toward which the subject moves—a connection, which evolves in navigation. As such, navigation involves a layered temporality, establishing the subject as the mobile deictic centre. The interface serves to make this spatio-temporal logic operable (Verhoeff 2013, 23). The experience of the Walkabout St Ives Mapp is a good example of how phenomena can be engaged with via mobile devices, and this combination of digital heritage, as presented by the Mapp, and the observable world around me combined cognitively to generate encounters with heritage phenomena that created meaningful contexts for the material provided.

4.3. Museum of London Mapps.

Moving away from St Ives, in the Southernmost county of the UK, this case study heads to the Capital where the focus will turn towards two Mapps produced by the Museum of London at the beginning of the 2010s. Like '*Walkabout St Ives*' both '*StreetMuseum*' and '*Londinium*' find themselves in the taxonomic grouping of interactive Mapps by utilizing a range of smartphone-driven multimedia methods in making connections between the historic and contemporary lifeworld of the user, and by mapping heritage phenomena in contextual locations across the City of London. In this case study users were observed through an ethnomethodoogical survey, as outlined in the introduction to this thesis, in order to monitor the relationship between the user, the landscape, and the phenomena displayed via the smartphone. Additionally this case study will investigate user responses to each of the nodes of engagement, and their associated phenomena, both individually and as a collective.

The Museum of London itself is located in the heart of the historic City of London, close to the Barbican Centre and in view of the remains of the Roman Wall that defined the boundaries of Londinium; the name given to the settlement by its Roman occupants in late antiquity. The museum, as it exists today, was opened in 1976, although its own history stretches back almost two centuries to 1826, where its first acquisition was a fragment of Roman Mosaic from Tower Street in the City of London (MOL 2017). In the years that followed the museum continued to utilise its archaeological collection in order to narrate the urban and social history of the City to more than one million

visitors each year (ibid). Today the museum's collection comprises a vast array of phenomena, which are used to tell the story of the capital from its first settlers to modern times. In total these collections contain over seven million objects that span more than 10,000 years of history. One of the most significant assemblages of modern history found within the museums archive is the photography collection. This assortment of visual phenomena has been growing since the first deposit in 1912, and today contains an estimated 150,000 items gathered from professional and amateur photographers alike. According to the curators of the collection, its 'strength lies in its breadth and documentary focus, with emphasis on working and social life, as well as the topography of London' (MOL 2017). Many of these images were used to create the Museum of London's *StreetMuseum* Mapp, which, as a visual encyclopedia of London's physical and social history, is the focus of the following section.

4.3.1. *StreetMuseum.*

The Museum of London *StreetMuseum* Mapp was created in 2010 in collaboration with the design company, Brothers and Sisters Creative Ltd, as part of the 'you are here' (MOL 2010) campaign, which sought to support the twenty-five million pound renovation of the museum, and its subsequent re-launch. The aim of the Mapp, which was described by Anthony Robbins, the Director of Communications at the MOL, as 'the museum in your pocket' (Robbins 2013), was to utilise augmented reality as a way to get the museum's photographic content out onto the streets of London, to connect with its citizens, and to tell the story of the city (ibid). Provided to the public for

free via the apple ‘app store’, the project teams aim was to achieve 5,000 downloads; however the success of the application was such that it exceeded more than 350,000 downloads within two years of its rollout (Lee 2013), during which time it won ten industry awards for its innovative use of mobile technology in the heritage, cultural, and educational sectors.

StreetMuseum, which in its first iteration was compatible with over 200 sites across the capital, uses an augmented reality overlay to allow users to view landmarks through their smartphone while simultaneously seeing a photograph or painting of it as it was in days gone by. A later update in 2014 saw an additional 100 images, ranging in origin of date from 1863 to 2003, added to the content of the Mapp. In all several thousand images from the museum’s collection were considered for use, and the resulting content combines to form the largest and most populated Mapp in the taxonomic survey, with locations stretching from Heathrow Airport in the west, to Woolwich in the East End of London.

Using GPS to geo-tag the photographic phenomena via Google Maps API, the Mapp displays the users’ position as they explore the city via a pulsing blue dot that moves as the user does. By touching one of the red pins, that indicate the location of the various phenomena, a tag appears displaying the author and the year that the photograph was produced. The tag also displays a blue arrow, which when pressed, via the touch screen interface, results in the image appearing on the screen. An additional touch on the screen brings

up another layer of information, which provides the cultural context of the image in question.

Image 9: ***Screenshots of Henry Grant's 1968 portrait of Carnaby Street.*** **(Source: Henry Grant Collection, MOL Street Museum).**

As an example of the interactive functionality presented by *StreetMuseum*, when situated in Carnaby Street, in the Soho district of Westminster, the user encounters a photographic portrait of the street, taken by the photographer Henry Grant in 1968 (see image 9 above). Upon activating the image, the

user is introduced to a busy street scene, which displays buildings, signage, motor vehicles, British flags, and people going about their daily lives. Upon pressing the screen a second time to reveal the interpretation provided at this node of engagement reveals that:

> During the swinging 60's Carnaby Street boasted many boutiques including John Stephen. Stephen opened his first shop in 1963 and went on to own nine more in Carnaby Street alone (*StreetMuseum*).

This information adds an additional level of interpretation to the photograph, which adds cultural and contextual detail to the phenomenon in question, and guides the user towards the purpose of reference as curated by the Mapp's content developer. However, it is the additional functionality of the Mapp that creates the phenomenalised perspective of personal interpretation. By activating the 3D option in the bottom right-hand corner of the screen, the smartphone camera is activated revealing an augmented reality overlay, which allows the user to simultaneously view the past scene, as displayed by the photograph, and the contemporary street view as seen through he lens of the camera.

This approach to interacting with heritage phenomena temporally displaces both the phenomena provided, as well as the users' own perception of those phenomena, and its contexts, both past and present, inviting the user to interpret the heritage in relation to their own experience of the lifeworld as they are presented via the Mapp. This is a valid method of engagement and

interaction in terms of constructivist learning, as we know that a great educational tool is the compare/contrast. In relation to this in the context of mobile engagement, Nancy Proctor asserts that ‘we can use this premise to include content about comparable types of objects in a number of museum collections - a sort of conversation across objects (Proctor 2012, 215). For Proctor, ‘to see that an object is not the only one of its type, comparing the same type of object across collections restores a sense of its cultural context. It also encourages closer looking’ (ibid). Furthermore, ‘digital images very often invite not contemplation but action, navigation into the larger mass of images of which they are a part’ (Rose 2016, 340). By providing an initial point of engagement via the app, users are encouraged to explore further, creating a compare and contrast scenario that generates a heuristic approach to discovering the past, where each users’ experience combines the engagement and subsequent interactivity with multiple phenomena to create their own personal narratives of the content and experience provided.

In exploring this further, at both singular and multiple locations, this case study provides examples and evaluation of user behavior from a total of ten participants, who were each observed and evaluated by the author of this thesis using the ethnographic and ethnomethodological methodology outlined in the introduction to this thesis. The participants were comprised of four people who lived and worked in the capital at the time of the event, and six who were visitors to London for the purpose of the activity. Those who worked in London participated as individuals, and included a teacher, a marketing rep, an archivist and an events planner. For the visitors, the participants were comprised of a family of four (two adults and two children, aged 11 and 14),

and one couple with a background in environmental studies. Those who lived in London each claimed to have a reasonable understanding of the history of London, while each of the visitors claimed to have limited knowledge of the capital's history and heritage; that is except for the fourteen-year-old boy, who had recently studied the blitz as part of his key stage three history studies. Each of the adult participants volunteered for the purposes of this research, and were aged between 21 and 65, with an average age of 32 years old. The study was conducted over two weekends in January of 2014.

With London being an expansive urban conurbation, the study was focused upon the central area of the city, in order to create manageable trails of engagement for the participants. However, no trail was prescripted owing to the expansive nature of the content presented via the Mapp, so should participants have wished to explore beyond the suggested boundaries of the study, then they would have been more than welcome to do so. Thankfully the dense nature of the presentation of phenomena did not result in numerous heritage versions of the London Marathon, with participants, on average visiting nine locations across the Mapp during the course of the exercise.

Choosing Carnaby Street as the starting point for each participant, each user began with orienting themselves with the platform, and becoming familiar with the augmented reality component of the Mapp. Turning attention to the contrasting scene before them, all participants, without fail, began to comment on the contrasting street-scene presented to them. For each of the users, individuals, groups, and pairs alike, this had been their first experience of

using an app of this kind, heritage related or otherwise. With a prescribed starting point the AR viewer was the first affordance provided to the participants who each used the device to make comparisons between the contemporary and historic street scenes.

Across the board all users commented on the changes and continuity between the two representations of this busy London Street. The affordance provided seemed to generate a natural response with each of the participants, with several likening the activity to a ‘spot the difference’ puzzle. In doing so the theme of change and continuity emerged, with comments about the literal discrepancies between the scenes, such as the absence of cars in the modern pedestrianised landscape, commonplace. The experience in each of the cases was a mobile one, not just in the sense of using the smartphone tool to hand, but also moving about the street to look closer at the contemporary lifeworld of the area at large, generating an embodied engagement with the environment. For those participants who remembered Carnaby Street at this time, comments such as ‘this was the place to be, man’ and ‘you wont remember this, but Tom Jones and an actress, who I cant remember, were here once, walking with a cheetah … very surreal’ add additional colour to the encounter based on past experience. Indeed, for those few who recalled London at this time they remembered it as a colourful and vibrant place ‘at least in this particular area … it was the swinging sixties after all’.

These examples of engagement with heritage phenomena, demonstrate how

participating in Mapping has the potential to create new knowledge, through both interpreting scenes and also by adding existing information to them. In some comments, at this and other locations the thoughts and comments of the participant often went off in tangents, creating a network of commentary brought on by the affordance of the present scene. In the case of StreetMuseum there is no facility to share or document such comments or thoughts, but this is a concept of phenomenalisation that will be addressed in the next chapter.

Moving on from Carnaby Street, users, on the whole tended to move towards one of the closest nodes on the map. The exception for this were the two environmentalists who had already decided that they would take their trail to the river, in order to explore the scenes presented to them there. In doing so, each participant enforced the sense of free-choice learning presented by such a platform in the wild. In this sense the user 'walks into the story' (Klein 2004, 11) with multiple narratives presented by the Mapp depending on the participants choices of where to go and what to see. Looking at this from a museological point of view, the Mapp operates as a huge and expansive exhibition of London life, a fact that is not lost on those participating in the exercise. One comment hammers home the affordance of the exercise when the archivist said that 'I am used to historic documents and images, but rarely do I see them in context. At each location it's as if I can see three images … The one on the phone, the one in front of me, and the one in my own mind, imagining past scenes and people in this place'.

It is the sense of reframed perspectives that is prevalent throughout the exercise, particularly at locations where the landscape or architecture has changed dramatically. As an example, in Queen Victoria Street, just over two miles from the original node of engagement in Carnaby Street, the Salvation Army International headquarters was bombed during the severest raid of the Blitz on 10 May 1941. Via the Mapp a photograph can be viewed, taken the day after the bombing, which shows the facade of the structure crumbling to the ground. When a users' intentionality is drawn towards the building through the AR viewer, this creates a ‘ghostly vision’ of London in wartime, and is evocative of the impact that the Luftwaffe raids had on the capital. For one young participant, who is exploring the Mapp with his family, this is an opportunity to share his knowledge of the Blitz. ‘This happened in Exeter … The Germans picked us out of a book that said the city was one of the nicest in England’. Indeed this participant is referring to the Baedeker Guide book, which was used to select targets in England as revenge for the bombing of Lübeck, Germany. In this instance the participant is making connections between his own knowledge of a subject and the node of engagement, while also adding a contextual layer to the encounter tangential to the scene presented.

Following each of the trails, participants were invited to discuss their experience. The most observable features of the discussion revolve around the impact of the experience at individual nodes, as well as the broader sense derived from the trails created. Surmising these comments, it is apparent that at individual nodes the participants felt that the Mapp had given them a sense

of events, and moments in time. All participants felt that the phone had almost become an extension of themselves in assisting their ‘time travel experience’. The information at each location was deemed to have provided a good learning experience, but it was the impact of the augmented reality view that had stimulated the most satisfactory element of the exercise, as ‘being able to literally overlay the past and the present allows you to really think about what was going on in the past, as well as the motivation of the photographer at the time’. Indeed in terms of phenomena, an image is a valuable item in providing representations of things as they were, and through viewing these photographs in praxis with the present, the users were able to derive their own sense of the scene based upon their own interpretations and embodied engagement with the contemporary landscape.

As a whole the exercise was evaluated as ‘a living history of London’ and ‘an endless window in to the life of a living breathing city’. Participants felt that they had a stronger historical sense of the capital, with one commenting that ‘you often walk past places and not notice them … but there is always a story, isn’t there’. One particularly impactful comment resounded strongly with the notion of phenomenological encounters where one of the local residents on the study stated that ‘it really makes connections between places. You’re used to your own little bits of London, and your own stories, but this shows just how large London is, not just in size but in … in a sense of time’. Building upon this thought I ask if this experience has helped him to see London in a new way, to which the reply came ‘absolutely it does … I want to explore more, of course, but from this I can see a different London in my mind, if that

makes sense? … Different buildings, different people, cars, clothes and all that … putting it all together creates a different view, in my mind, of what London was, and what it is today'.

In a follow up conversation with each of the participants, which took place exactly a year on from the initial event, it became quite apparent that two key themes emerged from the discussion. The first related to the longer-term resonance of using StreetMuseum in reframing users perspectives of their surroundings. This was particularly apparent in those participants who lived in London, each of whom had subsequently used the Mapp at various times over the course of the year 'just while, on the go'. This particular observation in itself reveals the impact of the practice in engaging with people, who had, on their way to and from work and in their leisure time, used the Mapp to engage with heritage phenomena in their everyday lives, enforcing the opinion that heritage can be engaged with by all of us, all of the time, providing we have the tools to hand to do so.

This observation also feeds into the second emergent theme, which relates to the serendipitous nature of heritage engagement through the use of smart phones. Rather than following a prescribed trail, as presented by the developers of *StreetMuseum*, the scale and scope of the Mapp allowed users to serendipitously encounter heritage phenomena while on the go. While during the original case study observation, users, on the whole, would tend to move on to the nearest available node, in these instances the encounters with phenomena, via StreetMuseum, tended to be influenced less by the exercise

of navigating the Mapp, but by incorporating the Mapp into their everyday experiences. Serendipity has been shown to have a positive effect on users' experience of smartphone heritage content (Waterson and Saunders 2012, 228), and should be remembered when creating activities of this nature.

4.3.2. *Londinium.*

Following on from the success of the *StreetMuseum* app, the Museum of London collaborated once again with Brothers & Sisters Media Ltd, as well as with Museum of London Archaeology, and the History Channel, in creating *Londinium*. This app was created to facilitate an interactive and locative experience that reveals the hidden history of Roman London. The app draws its phenomena from the Museum of London's collection of Roman archaeology, which includes over 47,000 objects that evidence the ancient city of Londinium at work, worship, rest and play. Speaking ahead of the app launch in 2011, the Museum's head of archaeological collections, Roy Stephenson, stated that the aim of the app was to:

> Tell people about so many different aspects of Roman life; from what sort of underpants Romans wore, to how they were buried, to how they lit their homes, to what sort of food they ate (Stephenson 2011).

These aims, delivered through the presentation of archival collections in digital form, as well as animations and sounds effects, allow the user to learn about the material and cultural world of Roman London. However, not only does the app reveal aspects of life in London almost two thousand years ago,

but it also allows users to make comparisons with the present day. At the time London was developing as the political, economic, and cultural melting pot of Britannia (Alcock 1996), something which continues to resonate with the modern day city, as even today 'London is the melting pot. This is where people come to make money, with the intention of staying for a little bit and then end up bringing up their children here and staying for all time' (Stephenson 2011). As with *Walkabout St Ives* and *StreetMuseum* this Mapp not only reveals the past, but also allows us to make comparisons with our own experience of the present, and thus generating the personal paradigm of heritage as it has been defined by this thesis.

In establishing the user experience of Londinium, the opening of the app reveals an introduction to the story of Londinium, presented in the form of an illustrated and scrollable timeline, which traverses from left to right on its way from the foundation of Londinium in AD 50, to the settlement's decline and eventual disbandment in AD 450. Throughout the timeline various artefacts and artists impressions from the time period in question are used to support the narrative which shows how this particular place went from a 'shanty frontier town on both banks of the Walbrook stream' to the 'largest and most important town in Brittania' (Museum of London: *Londinium App*). Events such as the British tribal revolt, led by the Queen of the Iceni, Boudica, in AD 60; the construction of the 3.5k perimeter wall, which define the boundaries of the settlement, in AD 200; and the expansion in to Southwark in AD 250, are all presented to provide an overview of the settlement's rise and eventual

decline, as well as to give a sense of time depth to the past existence of Londinium.

As with the original StreetMuseum, Londinium plots its phenomena via interactive display pins at numerous nodes of engagement. However in terms of functionality this Mapp is more advanced than *StreetMuseum*, in that instead of just red pins users may now encounter purple pins, each of which represent new forms of interactivity. As indicated in the previous chapter, these pins represent a number of different types of encounter with heritage phenomena in the form of animations and sound recordings, which recreate aspects of life in Roman Britannia in context with original locations. One such location is the forum, on which today's site, located at the corner of Gracechurch Street and Fenchurch Street, contemporary Londoner's would find a contemporary place of retail in the form of Marks and Spencer's. Further contextual engagement can also be explored through the digital excavation of some of the museum's Roman archaeology collections, again located by purple pins, which are excavated from the screen simply by rubbing or repeatedly swiping the touchscreen interface.

An additional layer of interactivity can be experienced through the map of Roman London, created by Museum of London Archaeology, to graphically represent the most up to date version of that lost world (Rowsome 2011). By moving the slider along the touchscreen the Roman City's historic topography, plan, and appearance, including its roads, waterfronts, public buildings, houses and defences, are superimposed on the modern street plan, with

visible features, such as the remaining section of the Roman walls, indicated. Through exploring this feature, users can find the underground location of former sites such as the aforementioned forum and basilica, the public baths, the amphitheater, and the Temple of Mithras, all of which were central to civic life in Londinium, and the remains of which are today buried approximately 7m underground by centuries of ground surface build up (Rowsome 2011).

As with the StreetMuseum case study, the user groups were made up of participants who volunteered specifically for the purpose of this investigation. Once again, in exploring the occurrence of phenomenalisation, users were invited to use the Mapps to explore London as both regular inhabitants as well as visitors. The user group for this study was made up of twelve participants, six of whom lived and worked within fifty miles of the Museum of London, with the other six members of the user group visiting the capital from locations across the UK. Those participants who lived in London comprised of two individuals, a solicitor and a student of history, and two pairs, one of which was made up of art students from the University of Kingston, and another couple, each of whom taught in the East End of London. For the visitors, the family from the first case study returned to continue their exploration of the capital, with two additional individuals, a student of law, and a sales rep for a large technology firm based in the South West of England. All participants showed an interest in history, although none, aside from the returning family, had experienced using smartphone devices in exploring heritage phenomena in any context. In this instance, each of the participants were aged between 21 and 55, with the average age of participants coming in at 32.

Once again using the ethnomethodological approach of observing the participants as they negotiated their journey into the past, the following section of this chapter provides key examples of the user behavior of these participants whilst using Londinium, while evaluating the way in which these individuals, or groups, responded to heritage phenomena through the affordance provided by this Mapp. The section looks at how users respond to various interactive affordances, by illustrating how these particular types of user engagement can be incorporated into the daily lives of the participants, whilst also drawing from the participants own constructivist driven knowledge in excavating narratives across multiple nodes of interaction.

Conducting this study in March of 2014, the main focus of the investigation occurred within a 3-mile radius of the Museum of London itself. Like *StreetMuseum*, *Londinium* does not prescribe a specific route for users, so, as before, participants were encouraged to move from their starting point at the museum and explore the content in a free-choice fashion. However, while in the case of *StreetMuseum* users tended to look at the proximity of the node to select their next location, many of the *Londinium* participants followed the introductory timeline, before spending more time looking at the surrounding options, largely due to the variation in interactive content provided.

Example 1: [In this example the students from Kingston University were setting out on their journey. Both participants had Londinium downloaded to their phone]

Standing outside the doors to the museum the two participants begin discussing where to head to first. Looking at their individual phones it becomes apparent after a few moments negotiating the nodes via the smartphone screen that they both have a different idea of where to head to next. However, this seeming disparity in the decision making process is made clear when they reveal that they each wish to visit the nearest purple pin, each of which allow you to digitally excavate a graphical representation of a Roman artefact from the museum's collection. The initial crisis is averted when they agree to visit one and then the other, thus beginning their trail in search of 'buried treasure'.

Example 2: [In this example the two London-based teachers set out to create their trail. In this case only one phone had the content downloaded for use]

In contrast to the previous example, the teachers, who also participated as a couple, discussed the possible options for no more than thirty seconds, before making their way to the nearest red pin, which featured an audio track that mimics the sound of Roman Mason's working to construct the wall that surrounded the settlement. This encounter led the couple to generate their trail, which took them to the former site of the Roman Amphitheatre, and three more nodes featuring audio and visual content.

These examples reveal ways in which users respond to non-prescribed trails when they have no preconceived notion of the trail that they wish to take. Without a designated trajectory to follow, in these instances the affordance of

being presented a range of options, superimposed onto a map via the smartphone screen, leads to the free choice model of heritage engagement and results in an organic trail, which is largely influenced by the content, both in the form of the phenomena, as well the interactive way in which it is presented.

However, other instances occurred where the participants already had a clear idea of the journey that they wish to take. For the family of four the express intention was to explore the old Roman Wall. In this case the father of the family acted in the role of guide, or 'lead explorer' as he exclaimed whilst encouraging his 'crew', based on a preconceived notion of the exercise. Likewise the solicitor had an interest in exploring nodes related to the area that surrounded the City of London Magistrates Court, due to his interest in learning more about the 'hidden history of somewhere that is familiar to me in quite another context'. The motivations employed by each user in this case study therefore vary due to both their interests in the contemporary timeframe of engagement, as well as pre-ordained plans for learning about a place based upon encountering somewhere in a new and novel way, or reframing a familiar place based on prior experiences and contexts of engaging with such a place. Therefore creating pathways of engagement that are driven by the free-choice patterns of engagement produced in connection with the presented content and the desires of the user.

While the motivations that led to the creation of multiple trail routes are of interest to this study, further significant analysis resides in how users respond

to heritage phenomena at contextually placed nodes, and how a known or visible place can be reframed through digital encounters with heritage phenomena. In total the participants on this trail visited, on average, a total of 8 nodes, with the largest number being the 16 visited by the teachers, and the smallest being the 6 visited by both the student pair and the sales rep alike. While each trail taken by the users differed in motivation, length and trajectory, a number of similar responses related to phenomenalisation were in evidence in each observation. All participants at some point during the exercise encountered one of the purple pins and all used the smartphone screen to reveal phenomena that included such diverse items such as a manicure set, a sword handle, an enameled mount, an oil lamp, a dagger sheath and mount, a mosaic floor, and even some bikini briefs. Through this form of digital excavation users themselves became digital archaeologists through the unearthing of phenomena on their smartphone screens.

This is quite a novel form of interaction across all Mapps, but is one that evidentially resonates with each of the participants. The two students were particularly keen on this form of interaction, not least because it allowed them to go on ‘a treasure hunt’ but it also presented information in ‘an easy to understand way’. Asked how this differed from an encounter in a museum the response, which was considered for a few seconds, was that ‘in a museum all the items are side by side … yeah this is similar in that you can see it and that you probably get the same info, but, here we found it for ourselves, and we have it, kind of … it does make me want to see the real thing though!’. The second of the pair also added that ‘it would deffo be cool to see the object, but

when we found it I think I thought more about its purpose, you know, that it did something, and it belongs to someone … in a museum you think of it belonging to the museum when it's there, at least I do … now I've found it, I want to know who's it was, how much it cost, and if it had value to them'. I ask if this is not the same in a museum, but the response returned reveals that 'because I'm not surrounded by other objects, I guess I'm more focused on this one … it will probably influence how I look at items when I go back to the museum, and other ones, though … it's definitely a cool way of thinking about things, I guess'.

The law student also expressed their satisfaction with the digital element of the content, stating that it was 'a cool way to discover something' and that 'I kept looking for other items on the map even without going there'. This disparity in the need for a locative encounter with the phenomena was later explained when the participant stated that 'unlike when you see a re-enactment or hear a recording, it is harder to make a connection between here and the object … you know it's not here any more, but unlike the other [interactions] it is harder to use it to imagine what it used to be like here, although I still try to … it does make me think about what is still beneath our feet though'. In each instance there is a question of authenticity raised regarding the phenomena, yet across each participant the notion of discovery at least evoked the satisfaction of discovering something new, and raised further questions about the form, function and original context of the idea. The encounters, and subsequent short conversations, also indicate the evocation of the personal paradigms of heritage, both in terms of the thoughts and

opinions of the user, as well as considerations of the original personal context of the phenomena in question.

Moving on from the digital excavation of phenomena via the touchscreen method, another resonant feature was evidently the use of audio tracks and re-enactments; with the former previously mentioned in the form of a ‘Roman mason’ working on the settlement wall. In the case of the family group the audio track was played to the children as they all surrounded the phone. The youngest of the group looked around to see where the sound was coming from, while the father explained the context of the interaction. Stating the age of the wall, whilst pointing to the visible section of it that remains to the eye today, the father, in his role as expedition leader, used the opportunity to encourage his children to imagine what the place looked like 2000 years ago when the wall was still intact and encircling the settlement. ‘Impossible’ one participant exclaimed, although he soon got into the role of deciphering the past landscape by imagining a wall ‘100 feet tall and covered in soldiers’. It was explained to him that the wall was not quite that large, but the encounter encouraged them as a group to discuss why a wall would be built, and what hard work it must have been to build it. In doing so the phenomena presented to the group led to a phenomenalised experience at an individual node as it facilitated an encounter that resulted in re-imagining the past, whilst projecting their own interpretation of the experience in relation to the phenomena in question.

Similar phenomenalised encounters were in evidence around the digital reenactments, which were produced by the History Chanel for *Londinium*. One such example could be seen at the former site of the Roman Amphitheatre where two virtual Gladiators battle it out in AR while the crowd cheers, and jeers in the background: Assisted by narration the encounter informs users that:

> When the gladiator troupe came to town, they brought energy and excitement to Roman life. As many as six thousand spectators' would wait expectantly round this Roman Amphitheatre for the show to begin. These two trained gladiators would have demonstrated their skills with pride and vigour. What would it be, thumbs up or thumbs down, life or death (*Londinium App*).

This encounter resulted in each user, who visited this location, to view the unfolding scene through their screen, thus creating an embodied engagement with phenomena, which generated a new perspective upon the busy street scene that surrounded the users. For the history student this provoked the comment that 'thumbs up was bad, thumbs up down was good … it's often perceived that thumbs up meant that the gladiator survived, but in fact this was the signal to the crowd that the defeated fighter was to be finished off, if you know what I mean'. In this instance the participant added to the narrative provided in support of the phenomena in question, while other participants provided the tangential interpretation of the scene by likening the practice of gladiatorial combat to the contemporary practice of 'Bull-fighting in Spain',

while another participant compared the auditory element of the encounter to modern day football stadiums by saying 'the crowds at West Ham are just as vociferous, although even on a bad day I doubt we'd be baying for blood… well, not literally. At this point each of these participants were asked if they thought that they would have gone to the Amphitheatre for these kinds of shows. Both agreed that they would, with one pertinent comment from the West Ham fan being that 'this would have been the entertainment of the day … this version [shown via the app] is probably pretty tame in comparison to the real thing, but I've already seen on this tour that life was a bit tougher back then, even for someone who grew up in the East End'. The participant laughs at this comment before heading on to the next location, but on our way back to the museum, he notes that 'this was the best bit of the tour for me … really got me thinking about the difference between life in London then and now'.

In each of the presented instances we see here how engaging with heritage phenomena through mobile devices presents the affordance of deciphering aspects of the past in a role akin to a digital archaeologist as presented in chapter three. In parallel to discussions regarding the archaeological approach to phenomenology we see that this practice affords users the experience of not just viewing the phenomena in question, but also to look around them to see beyond the scenes presented by the device, as well as what they see in the world around them. The result is a temporal displacement that sees the merging of past and present lifeworlds and interpretations that build upon both existing knowledge, as well as imagined scenarios.

In concluding each trail, participants were once again invited to discuss their experience; an exercise that once again brought up some recurrent themes related to phenomenalisation. One of the key themes that was expressed in each conversation was the concept of following in the footsteps of past people. This is particularly resonant with the post-processual method of archaeology, particularly from an embodied point of view**,** where users try to project themselves into the lives of the people of the past. This builds on previous phenomenological work carried out by Jessie Pallud, who also noted that a ’better understanding the lives of other civilizations and trying to put themselves into the shoes of historical characters appeared as a common process for some of our participants’ (Pallud 2009, 186). Again this approach reframes the perspective of the user, and through the symbiotic relationship between phenomena, user, and the landscape, as illustrated through the Mapp and in the contemporary lifeworld, scenes become a hybrid reality that engages the senses in deciphering the world as it may have been before.

With Londinium new forms of digital phenomena, not seen in the previous case studies, were in evidence through this Mapp, and so in this case artefacts were also incorporated in the conversation. The ‘digging up’ of digital items allowed the users to actively take part in excavating the past. For the users this allowed them not only to see traces of the past from an archaeological perspective, but also gave an insight into the daily lives of Roman Londoners. Through this particular affordance we see the production of phenomenalisation from digitisation through to placing phenomena back in the wild to be rediscovered again by new audiences for interpretation. In some

cases there was a feeling that the digital object had less resonance than that of an image, with the affordance of the encounter not having the same impact as that of the photography seen in *StreetMuseum*. This particular phenomena correlates with fears expressed by Kirsten Latham, who finds the implications of digitizing objects as a replacement troubling, as 'without the physical thing, the reaction may be lessened or absent' (Latham 2009, 142). However, as an affordance the excavation of digital items across Londinium continued to have an effect on users. The satisfaction of discovering the item from beneath the digital soil was immediately evident, and while the expression of the wish to see the real thing was apparent, this affordance did create both a connection between the user and the phenomena in question, interpretations of its form, function and use, and personal opinions on the life of the item and the people that it was originally connected to. Moreover, these encounters also created the desire to see the real thing, and thus created additional connections between the traditional museum and the smartphone driven museum without walls.

4.3.3. Summary.

Following on from the auto-ethnographic study of my visit to St Ives, the case studies drawn from the two smartphone Mapps created by the Museum of London bring up a number of comparative themes, as well as new strands of investigation. At this stage of this investigatory chapter, one emergent theme that seems to be of particular interest is the divergent nature of interaction between various types of phenomena. Visual content appears to have a particular resonance with users, as the affordance allows the opportunity to

compare and contrast the visual scene with the past, as presented by the Mapp. In this vein, re-enactments and audio cues provide visual imagery and soundscapes that immerse the user in hybrid situations. In doing so, *StreetMuseum* and *Londinium* establish a set of relations among the here-and-now of the immediate present and the past, where the user is moving in a haptic, performative engagement with space and time (Morais 2015, 5), which promote the role of the user as an active agent in deciphering the clues presented to them.

Through providing the platform to create multiple pathways of engagement through the visible scenes of everyday life, users are able to directly connect museum information into their everyday experiences and make personal connections that 'create long-lasting memories that will be triggered every time the visitor visits this particular city or street' (Sinclair 2007, 62). While the authenticity of the digital object may have been challenged, these personal connections were still in evidence, and the overarching theme of the evaluation that has emerged is the way in which people make these connections, not just between the phenomena and the landscape, both current and historical, but also between phenomena and themselves. In all cases the trajectories, or trails, followed by each user, or user groups, diverged due to preference and personal choice, and in following up the case study it emerges that the notion of serendipity is a valued component in user evaluation, not least in that it makes the connection between the digital and our everyday lives.

4.4. Exeter Time Trail (RAMM).

The final case study of this chapter turns its focus towards Exeter Time Trail, for which the mobile element was researched and developed in 2013 as part of the REACT-HEIF funded knowledge exchange programme. As a concept, and practice, RAMM Time Trails began initially as an e-government project in 2003, where the museum provided content to the then Telematics Centre at the University of Exeter for the construction of a website, with the aim of presenting the museum's archaeological and art collections, along with related content from Exeter Archaeology. The way chosen to do this was splitting the content into ten time periods, and subsequent sub-themes, which meant that you could view objects from medieval Exeter and then filter out objects related to the home or to medicine (Lawrence 2013).

The mobile project, and delivery of the Mapp, was produced in collaboration between the Royal Albert Memorial Museum and Art Gallery (RAMM), 1010 Media, and The Centre for Intermedia at the University of Exeter, as a means to expand the reach of RAMM outside of the limits of its physical space, and to allow its visitors and users of the mobile web based app to explore various aspects of the city's history and culture while 'on the go' (Giannachi et al 2014, 98), and to facilitate users to view and engage with items of material culture closer to their original point of creation or discovery.

This project researched the use of trails as a means to encounter and respond to RAMM's collections outside the museum. Drawing on research into trails (Ingold 2000 and 2007) and into trajectories as a way of designing

mixed reality environments (Benford and Giannachi 2011), and focusing in particular on the orchestration of time, space, and roles, Time Trails investigated the curation of encounters with hybrid collections and archives via the creation of a number of chronological trails (e.g. Roman, Tudor, World War 2) and thematic trails (e.g. health and sport) that lead visitors through the city of Exeter (Giannachi et.al 2013, 2). Professor Gabriella Giannachi of the University of Exeter, and Rick Lawrence the RAMM Digital Media Officer led the project, with support from Tom Cadbury and Helen Burbage (RAMM), and Andy Chapman of 1010 media who implemented the wireframe and subsequent development of the digital content. As a member of this collaborative research and development team, my role was to explore content from the museum's collection that could be used, and to develop the Mapp in order to generate engaging experience that enhanced the meaning for the phenomena on each of the trails, as well as the creation of personal knowledge related to heritage in the city.

Research and development focused upon the creation of the Tudor Trail in June 2013. The decision behind this particular trail came from the options available in the museum's digital collection, as well as local heritage experts, such as David Adcock of the City's Red Coat Tour Guides. Further consultations were held with local schools, and a paper-based version of the Mapp was created using both a historic and contemporary map, in conjunction with physical objects from the museum's collections. The result of the consultation, and the experience of surveying a number of cultural heritage Mapps across the sector resulted in a responsive web application that was

built using Intel's AppFramework, which operates as a lightweight alternative to jQuery mobile. The system uses Google Maps and geocoding API's to render a map scaled to contain all the predefined marker co-ordinates. The users' location on the map is pinpointed using the browsers watch position then these co-ordinates are geocoded dropped into the map as a user location marker. Interaction at the locations is done via AJAX posts to the web-server where images are resized and stored on Amazon S3 cloud storage - comments are stored in the web-servers MySQL database.

In exploring the Tudor Trail a number of testing designs were discarded, including the option to create your own trails by selecting crossover themes, based on time period or object typology, or the option to plot your journey, as you would while looking for directions on Google Maps. The concept behind these ideas was to allow for greater flexibility in research options, or to fit trails more neatly into people's everyday lives. In the first instance an example can be provided by paintings, which appear in a number of the trails. This option would allow for items that are available in separate trails to be brought together typologically to create a new trail based on existing content. The second option was discussed as a result of consultation with local schools who felt that the Mapp could then be used on field trips, or as homework, where users could create their own trails to represent their journeys to and from a particular place. Both options would have resulted in the generation of bespoke trails, akin to the ones encountered in the Museum of London Mapps, but with the added functionality of separating the phenomena on the trail from the other nodes visible on the Mapp. However the possibility of

incorporating these features was limited by the usual project constraints of time and budget, as well as other technical challenges that resulted in overly long load times for the content. Another feature that was implemented and trialed was a visible line that tracked the movement of the user, thus creating trajectories of these encounters that would document the special use of the Mapp. Sadly the proximity of nodes, combined with the unpredictability of the GPS tracking used for this function, resulted in discarding this feature, so as not to confuse the user experience.

The resulting platform allows users to explore over 250,000 years of the city's heritage. The story is told through various heritage phenomena, including hundreds of objects from RAMM's collections, and numerous additional images of historic buildings and archaeological sites. The phenomena in focus here are evidently the museum's physical collections, and the platform allows users to view and engage with items of digitised material culture closer to their original point of creation or discovery, whilst exploring a number of themes related to a particular time period. These themes are as varied as the treasure-trove found in the museum itself, and include a Key Objects Trail, Healing Protection and the Spirit World, Art and Soul, Historic Decorative Plaster Work in Devon, Tudor Exeter, Harry Hems – a Victorian Craftsmen, and the Second World War.

Thematically, the study of the Second World War is a strong example of the potentially paradoxical nature of history, and this Mapp trail was designed to bring together an eclectic mixture of phenomena related to this particular

conflict. Examining the impact of this global event in the relatively localised context of the city of Exeter, we see themes such as conflict and resolution, destruction and regeneration and change and continuity. Many of these opposing themes are central to understanding the events and impact of WWII on the city of Exeter and can be illustrated by looking at the material record left by the period.

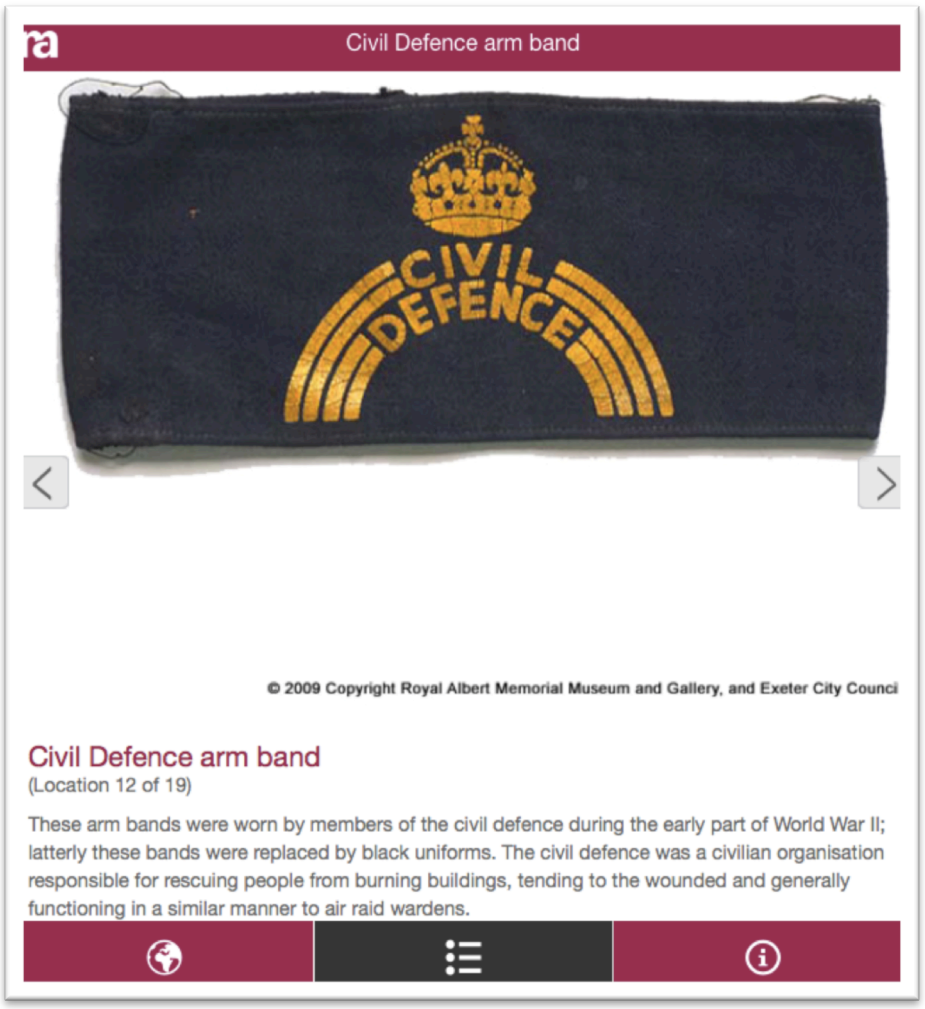


Image 10: *Civil Defence Armband and text.* (Source: WWII Time Trail, RAMM).

The artefacts and items of material and artistic culture considered for this trail range in size and shape, from a mug to an air raid shelter, and include items such as medals, plans, paintings and travel warrants. These objects in themselves show the wide range of phenomena that comprise the physical

evidence that helps us to expose the story of the past, and while many of the items are specific to the period, others would find a familiar resonance with most people in the present. What they all have in common, whether obscure and remarkable or distinctly average or normal, is that they create an exploratory experience that allows the user to uncover not only factual aspects of the story of WWII, but also to consider how the war would have affected the lives of the people of this period and the physical impact that it had on the landscape of the city of Exeter.

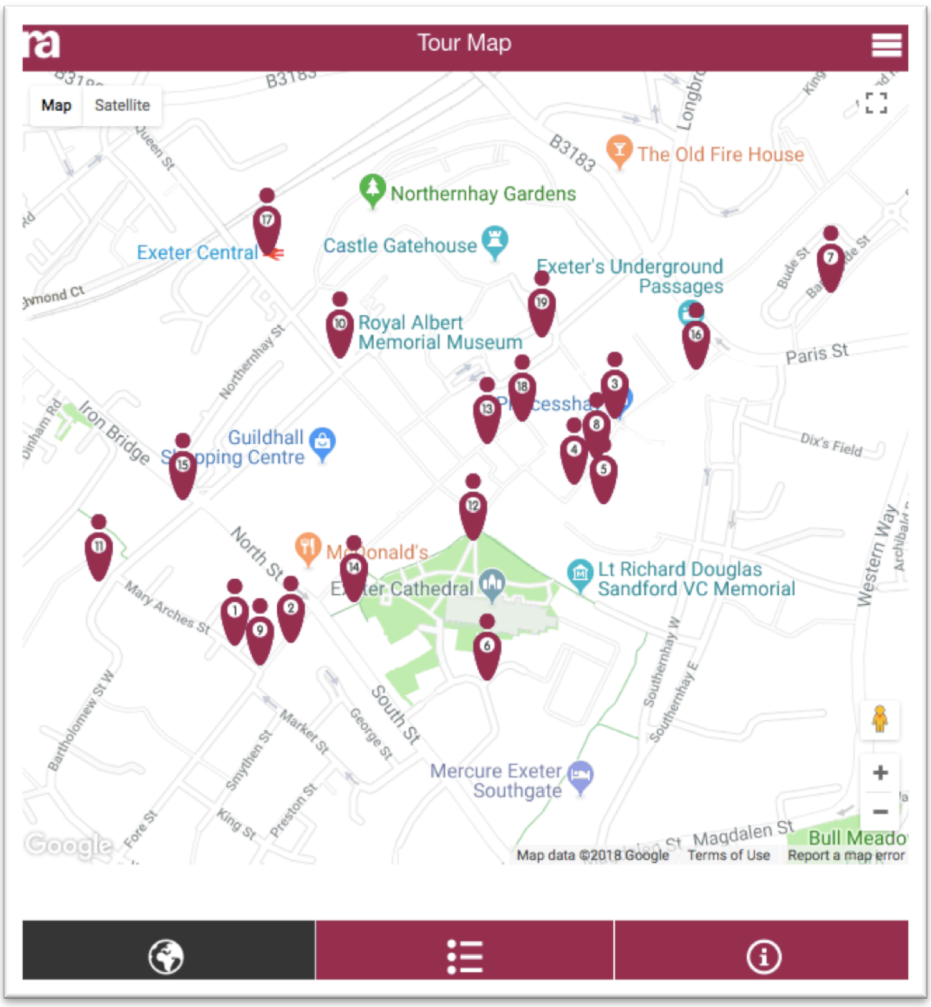


Image 11: ***Nodes of engagement of the WWII Time Trail.*** **(Source: WWII Time Trail, RAMM).**

The participants for this case study numbered 28 users in total, all of which were recruited for the task through emails and social media. All participants came from the local area, living within 20 miles of Exeter, and so had some prior existing knowledge of the contemporary landscape in which the trail is based. Furthermore, each participant had some awareness of the events that took place during this time, having either studied the subject in school, or through oral histories provided by family members or friends. Given the proximity of the trail to my own research base, the observations in this case study occurred over a longer period than the previous case studies, taking place between August 2014 and July 2015.

During this case study, as with *StreetMuseum*, it is this physical impact of the Blitz that generated the most powerful response from participants. This was observable at each location that digitally displayed an image of buildings or locations altered, or even destroyed, by the German raids. Following the map through the Princesshay area of the city, it was particularly notable how each participant stopped to situate themselves in the orientation of the image. One particular location, that of Bamfylde House, which was destroyed completely by the Blitz, caused confusion amongst the users, with one participant exclaiming ‘you’d have no idea now that it was here’. When asked about this particular moment, he responded by saying that, ‘the area was completely unrecognisable today. I almost feel lost, although it is cool to imagine how this part of town used to be. I think its better now’. What we see here is the rejection of a single truth. To most, the knowledge that the bombing destroyed much of the area was abhorrent, but for this participant, the destruction

represented ‘progress’, albeit in an unpleasant way. This narrative of change and continuity continued throughout the trail, and revealed how seemingly static items of material culture can stimulate a response to perceived events of the past, as well as personal interpretations of the present landscape.

Beyond the narrative of change and continuity, each participant reflected on how such seemingly innocuous items would have had such significance during the war. Two of the participants, who followed the trail together, used the ARP warden badge to instigate a discussion regarding what role they would have played in the war, and how they’d feel to be in Exeter during the nights that it was bombed. Taking on the traditional manly role, one proposed that he would have been away fighting, while his partner would have been at home with the family. Here we see each participant moving beyond the narrative presented to produce personal interpretations that are derived from the encounter. Furthermore, the female participant asked her companion, ‘what if you were too old and had to be an ARP warden?’ to which the response came, ‘I probably would have been scared stiff, both for me and the family, although I’m sure I’d have done whatever I had to do’. Other similar exchanges also occurred, with one participant claiming, ‘you must have been proud to wear that. There’s something about that armband that makes me think they were good times… Bad, but good, if you know what I mean?’ While this is an assumed stance, the experience of the trail has clearly impacted on the users thinking. In another similar exchange with an older participant the ‘Fire Guard’ armband has particularly resonance, as one of their relatives was stationed in the city centre in such a role during the war. ‘We had one of these

at home' she exclaimed. 'It belonged to my granddad, and it was part of their uniform, in fact If I remember rightly it was the uniform … I'm not sure, but what I do know is that I was told how brave these men were and you wouldn't have wanted to be up on top of one of these buildings when the bombs came'.

Unlike in the previous case studies, this exercise ended at the museum, where many of the items in the trail are on physical display. Here participants responded to the tangible phenomena, making connections between the artefact, the digital representation, and the location in which they encountered it. The Dennis Flanders painting that shows the bomb damage to the Cathedral, and Charles Brown's landscape that portrays Bedford Circus after the Blitz hold particular resonance. I see one participant looking at them closely, and later ask why they had caught her gaze for so long, given that she didn't spend much time looking at any other item, and she responds 'because I understand them better, I think. They [the artists] weren't just painting a picture, they were preserving a moment'. I ask why she has come to that conclusion, and she replies, 'Well, it's all gone now; the damage and destruction. But you can feel how it must have been having been there, you know, at that time. I'll probably look at that part of the cathedral every time I walk past it now'. She smiles at the end of the conversation, but what Sarah demonstrates in this exchange is how these paintings have become phenomena in the truest sense.

Through engaging with the paintings, both in context and within the traditional sphere of the museum, the participant has considered the relevance of the

phenomena. Her understanding is arrived at through the experience of the past in the present. Perhaps the physical nature of the paintings themselves would have been enough to encourage such a response, but it is quite evident that the way she looks at the cathedral now, indeed how she will look at in the future has altered due to the initial experience of viewing the work in context. The phenomena have now generated a personal meaning, and a narrative of understanding that was previously absent.

At the end of the trail, each participant was asked to reflect on what he or she had taken most from the experience, and what thoughts had stuck with him or her. The examples shown below reveal some of the most pertinent responses, which will be evaluated beneath.

Example 1: I've seen the City change so much over the years, but never thought about how much it would have changed in just a few nights of bombing! That's scary really!

Example 2: I'm glad that I live when I do. To think of huddling up in a cramped shelter sends a shiver down my spine. Makes me feel a bit sick really! I can't help thinking how horrible it would be to spend the night in their and then discover the next day that something you knew, like the museum for example, was gone. It could have happened couldn't it?

Example 3: I think that the trail showed the significance of even the smallest of things. The mug, for example, I didn't really get it. Why show this object

here, if anywhere at all? But then I thought, that it represents the culture of the time. It's almost ghostly really. Here was once a great place to socialise, but now it's a shoe shop. All that's left is the mug!

Example 4: Has to be how I'll look at things. I walk past that Cathedral almost everyday, but never thought that it was ever in danger. I imagine now if that bomb had dropped closer to the middle whether there would be a Cathedral at all. Imagine that. How different would the City be?

Example 5: How the war changed how the town centre looks. I'm new to Exeter, but I'm from Swansea. There are bits of Exeter that look a lot like home and I guess that's to do with the Luftwaffe. They blitzed us too, and looking at the pictures on the trail, and the buildings that are there now, its obvious when I compare it to home where the damage was done. I think a lot survived here compared to Swansea though! Like that little church on the High Street. The red one. Amazing really!

Example 6: That I never knew what was coming next. I think looking at things in that way is really cool. Being in the museum makes me think of how things used to be for other people, but on the trail I though how it would be for me, if I lived then. I guess that would have been unexpected too.

Example 7: That travelling to work in the war would have been a bloody nuisance. Imagine you lost your travel warrant. You'd be for it then! I have enough trouble with my bus pass as it is [laughs]. Seriously, you take for

granted the little things don't you. Also, I think I would have been proud to be part of it all. Like I said before, they were bad times but good times. You see how the town is now, and you know that the people then played a part in rebuilding it.

Example 8: When we came across the cord from the bomb [parachute mine], I thought that it was really quite dull. What have I got myself into I thought. Sorry! But then we walked through Princesshay and where the square used to be, and I thought back to what was on the end of that cord, and what it did. Suddenly I looked above my head, which I though was really quite silly, but it just made me imagine what must have happened.

The question was deliberately poised in such a way as to not focus on particular phenomena, but to see how the experience of exploring the City in this context had resonated with each user. In all of the responses, each participant has focused upon one particular item, and tied to the overall thematic nature of the trail. For the user, the trail has created phenomenalised experience, in that the situated items have drawn out personal understandings of the impact of the Blitz, both on the landscape and the lives of the people of Exeter. These understandings are indeed deeply subjective, and in many ways imagined, but they have caused each participant to augment the script of the trail in their own unique way, based upon their embodied and minds on experience of the trail. In addition, not one respondent quoted any of the information provided by the text at each location. What was important to each participant was the historicised sense of

place that each location and object represented. The significance of this is that the experience clearly generates knowledge as opposed to information. In this mobile and wireless world, information is associated with places. ‘Places acquire the load of the data, the territory (urban, rural and natural) charged with referenced geographic information’ (Pellitero 2011, 67), yet through phenomenalisation this data, this information, is charged further with the creation of meanings, different perspectives, and new knowledge, through the metaphorical excavation of phenomena.

4.4.2. Summary.

Sense making is a fundamental component of history, as historians attempt to not only describe but also interpret the past (Tosh 2015, 1). Tosh’s analysis of how we make sense of the past, in a historical sense, states that as historians we are conditioned by the character of the sources presented to us, as well as the methods through which we these sources are interpreted. The sources provided in this case study come from museum collections and are presented in the form of digital heritage phenomena for interpretation; and in terms of phenomenalisation it is the personal paradigm of heritage interpretation that is in evidence once again here. Sense making from this perspective relates to the interpretation provided by the user, and how it manifests through the use of digital tools in the production of knowledge.

In terms of production this has been shown to manifest itself in one of two ways. The first will see the user offer their personal interpretation of the phenomena in question, either as an individual item, or as part of an

interpretation of a theme as a whole. From the second perspective, personalisation may even refer to a user's own experience of the item in question, perhaps through direct use or through familiarity with relevant phenomena at a different point in time. For example, the armband from the fire-guard uniform from World War Two has conjured memories of past experience, directly through the use of such an item in relation to the experience and past lifeworld of the individual. In other cases it may trigger an associated reference born of the users previous knowledge of the period in question or a similar theme. Here, in the case of *Time Trail*, we see phenomenalisation developed both through memory and association, while the examples provide supporting evidence of how meaning-making produce a multitude of responses when the user of a Mapp engages with heritage in this way.

4.5. Conclusion.

As the discussion regarding the nature of heritage in this thesis has illuminated, 'heritage itself is better understood as a process rather than a finite set of structures' (Gilmour 2007, 2). In line with Gilmour's assertion, rather than viewing heritage as a finite selection of structures, this thesis recognises that heritage is made up of intrinsically related and interlinking phenomena, as evidenced through the production of trails that users follow and to connect nodes of engagement charged with heritage related information, images and audible content. Through looking more closely at user experiences of interactive Mapps, this chapter has demonstrated that applications use the affordances of locative screen technologies in an effort to

transform everyday mobility toward an embodied experience that facilitates ‘a deeper empathy and understanding with past narratives, that are often overlooked’ (Verhoeff & Cooley 2014, 209).

The opportunities to engage with these narratives are presented through phenomena at digital nodes of engagement, but the creation of the narrative itself is bespoke to each user depending on the free choice navigation of the landscape, as chosen by each participant. The specificity of navigation is situated in the intersection of mobility, agency, and perception, and the experience thereof’ (Verhoeff 2013, 21), and the resultant stories that emerge at this intersection are formed to create personal interpretations of individual nodes of phenomena, and of the landscape as a whole. In this we see that interactivity is seen not just in a technical sense, but also as an interactive exchange between user and digitised archival material.

Archives do not simply reveal the past to us, as they rely on ‘a variety of interpretative methods to assemble and establish credible versions of what happened and why’ (Whittle and Wilson 2015, 11), and with the smartphone as the tool to hand users make sense of the material presented in order to create new narratives based on factors such as perception, emotion, and personal experience or memory. As this chapter has looked at how these narratives are formed through interactive affordances, the next chapter will now look at how the process of phenomenalisation can move towards a holistic conclusion through the digital sharing of information and the creation of new knowledge, in the community co-curation of heritage Mapps.

Chapter 5. Investigating Co-Curation through Curatorial Mapps.

5.1. Introduction.

The final investigative chapter of this thesis turns its attention to the Mapps that have been categorised in this work as curatorial, in order to illustrate how phenomenalisation emerges from digitally mediated interactive encounters with heritage phenomena, towards the creation of new knowledge and the sharing of new narratives. As with the platforms examined in the previous chapter, those selected here allow users to explore heritage phenomena, in the form of digital objects, scenes and narratives, in environments outside of the traditional confines of the museum, whilst additionally providing further functionality that facilitates opportunities to create and generate new heritage content. Through investigating three specific platforms, this chapter will show how curatorial Mapps facilitate the production and sharing of new knowledge through processes that have been described by other scholars as 'community co-curation' (Russo & Watkins 2007, Simon 2010, Chilcott 2013), whilst also seeking to demonstrate how this form of public curation is stimulated through phenomenological encounters with heritage phenomena in the development of constructivist-driven narratives.

The methodology employed in this chapter follows on from the auto-ethnographic and ethnomethodological approaches used in the investigation of interactive Mapps in chapter four. The first of these case studies focuses on *Historypin*, which is one of the largest curatorial platforms created during the course of this study and includes more than 28,000 contributions of

phenomena to its Google Maps interface. The second platform*, Moor Stories*, was developed in order to share information and knowledge about the Dartmoor region of Devon, as well as to connect the museum and its collections to this particular landscape of cultural and historic interest. The final case study investigates *Placeify*, which built upon the *Time Trail* platform to allow users to create their own trails, as well as comment on the content provided for engagement. This case study looks briefly at how *Placeify* was used by museums in the South West in order to geo-locate various forms of heritage phenomena, before looking in more detail as to how the platform was adopted by Exeter City Football Club in developing its heritage practices. As with *Time Trail* in the previous chapter, I was involved directly in the research and development of the *Moor Stories* and *Placeify* Mapps, in designing the user experience, as well as supporting stakeholders in the selection of phenomena for digitisation, and the development of their heritage narratives. The conclusion of this chapter will draw together the findings of these case studies in order to demonstrate the claim of the thesis that the implementation of mobile platforms in the delivery of cultural heritage content not only extends the boundaries of the museum, but also reshapes the ways in which users consume and create meaningful encounters with heritage phenomena.

5.2. Historypin.

In chapter four, I looked at how mobile heritage applications are used in order to generate meaning-making through interactive encounters with digital heritage phenomena. In this section, I look to expand on this process of meaning-making through an investigation of *Historypin*. The methodology of

this section mirrors that of the *Walkabout St Ives* case study in chapter four by adopting an auto-ethnographical approach to the exploration of the *Historypin*, which allows users to explore heritage phenomena via both desktop and mobile platforms, while also placing individuals and cultural heritage institutions at the heart of its curatorial process. The mobile experience of using *Historypin*, both in an interactive and curatorial sense, will be explored here in order to show how the platform creates the affordance of meaning making through phenomenological encounters, as well as the emergence of new encounters for future users through digital curation.

Historypin was created in partnership with Google in 2011, as part of a series of commitments to digital inclusion (Crow 2010), and consists of a web platform with additional apps that can be downloaded to your smartphone. In terms of inclusion the platform has been described as a 'powerful catalyst for positive intergenerational contact and the reduction of social isolation' (Armstrong 2012, 296), while it has also been studied for its affective power in increasing the discovery of, and access to, digital collections (Baggett & Gibbs 2014, 17). Recognising that images are easily accessible and usable forms of phenomena, particularly in relation to mobile engagement and community curation, Natasha Armstrong shows that 'photographs are a great starting point for conversations and for bringing people together in positive and meaningful interactions' (2012, 294). Furthermore, as shown in the previous chapter, visual phenomena are a powerful tool in connecting mobile users to a particular place or time, specifically in terms of making interpretations about locations and associated phenomena.

The platform comes with the tagline ‘connecting communities with local history’ and is described by developers on its home page as ‘a place for people to share photos and stories, telling the histories of their local communities’ (*Historypin/About* 2017). In simple terms, *Historypin* works by allowing users to explore content via the Google Maps interface, as well as add their own collections of heritage phenomena to the map for exploration. As with the interactive Mapps examined in the previous section, *Historypin* displays content at nodes of engagement that allows users to encounter phenomena in the form of images, audio, and film in context. What sets *Historypin* apart from Mapps such as *StreetMuseum* and *Londinium* is its curatorial element, which allows users to add their own content to the map by using their smartphone to digitise an old photo, capture a modern moment of historic importance, or take a modern replica of a photo via the app. The functionality of the platform ‘allows pinning by latitude and longitude, enabling objects to be pinned to very precise locations’ (McWilliams 2014, 49), thus connecting phenomena closely to their point of creation or origin. As of 2015, ‘over 60,000 people had contributed information as well as 2,000 libraries, archives and museums’ (Millard 2015, 49), and the result is a vast and sprawling collection of locative phenomena, including items from private users, community groups, and heritage organisations, placed on the Google map interface in locations all across the globe from Australia to Zimbabwe.

In facilitating the community co-curation of cultural heritage phenomena, *Historypin* allows users to set up their own channels, which operate as home pages for both individuals and institutions to organise their geo-located

content. These channels enable participants in the co-curation process to compile pins (including their own original content as well as content added to the Mapp by others) into collections or tours. Collections are displayed on the platform in the form of lists, while tours are displayed as pins on the map, allowing users to locate phenomena via their smartphones through the Google Street View follow a route, either virtually or in the real world, accessing information about museum objects in the places with which those objects are associated (McWilliams 2014, 49). In formalising the platform as an archival tool, the interface allows for bulk uploading of materials and includes several metadata elements that mimic traditional digital collections including rights statements, title, date, geographic location and a general description field for object-level description or identification (Baggett & Gibbs 2014, 15). The process is resonant with the emergent participatory paradigm in museology in that it enables user to become ‘active, free participants’ in media processes ‘rather than static, passive and subservient to the images and values communicated in a one-way flow from media sources’ (Brown 1998, 47).

In exploring the digital heritage landscape as presented by *Historypin*, the sprawling collections and tours represented through geo-located phenomena on the Mapp provide an almost overwhelming range of choices for this study. Just focusing on the South West of England, from Cornwall through to Somerset and Avon, the Mapp reveals in excess of 2,500 nodes of potential engagement, strengthening the assertion that the delivery of heritage content via mobile phones ‘enables opportunities for visitors to participate and

contribute wherever and whenever they choose to do so' (Kelly 2014). In this spirit I selected for this case study 'A tour around Bath showing the impact of the blitz of 1942', created for the platform by Bath in Time in association with the Bath Central Library.

In April 1942 Bath suffered a devastating attack from German bombers, seen as a reprisal for Allied bombing of Lübeck in Germany, a beautiful city of little strategic significance. Providing cultural context for the heritage phenomena displayed by the Mapp, the tour indicates that having got used to bombers flying over to attack Bristol, Bath was not well defended, and the bombing over three separate raids caused widespread damage. Visiting the City almost 71 years to the day of the raid, I explore the tour which overlays images from the Bath Central Library that document the aftermath of the German raids at 45 nodes of engagement. As we have seen previously, this myriad of selected phenomenon, placed at nodes of engagement across a digital map, is typical of the Mapps discussed thus far in this thesis.

Visually, the principal effect of the tour serves to highlight the serious impact of the bombing on the centre of Bath, whilst also providing a special understanding of the events of April 25-27, 1942. On Upper Bristol Road the traffic rolls past while the smartphone sets my gaze upon a picture of a gasworks ablaze. The contrast between my current lifeworld stands in stark comparison to the street-scene displayed via the smartphone screen. Today the landscape is restored, but the trace of the bomb damage is visible in its absence as I imagine the emotional and physical effects of the raids. Again on

King Edward Road, a sleepy suburban street is overlaid with images of the devastation wrought on the location by the bombing. As I walk through the scene of the image my path is not blocked by the debris strewn across the AR overlay, yet this embodied interaction with the node of engagement recognises the contrast between my own situation and that of the individuals depicted assessing the rubble.

Image 12: ***King Edward Road, Oldfield Park April 1942.*** **(Source:** ***Historypin*****/Bath in Time).**

These human factors are also displayed via the curation at several other locations, no less at Smiths Wine Vaults, Westgate buildings, where it is revealed that two people had been rescued from under the destroyed

building, having found relative safety in the wine cellar of a building that used to be a debtors jail.

Image 13: *Smiths Wine Vaults, Westgate Buildings April 1942.* (Source: *Historypin*/Bath in Time).

The 'impact of the Blitz' tour in Bath provides an example of a coherent heritage narrative by focusing on one time period and theme. However, not all uses of *Historypin* are contained to such parameters. One of the characteristics of this curatorial platform is that the decision of what to add to the interface, and therefore what narrative to tell, is entirely in the hands of the user. In exploring this multi-vocal approach to heritage further, I headed to

Exeter Quay, on the banks of the River Exe. Given that this is the closest cluster of phenomena on *Historypin* to my own base of research, I was interested to see what phenomena had been digitally placed on my doorstep, and to explore the subsequent narratives that would emerge, in order to further assess the claim that heritage can be engaged with by all in relation to our everyday lives. The resulting findings revealed a heterogeneous collection of sporadic pins, representing a number of different approaches to the sharing of heritage phenomena, including contributions from RAMM, Historic England, Norfolk Library, and a number of private users.

The contributions from RAMM include a selection of shoes, each of which are placed at nodes of engagement, connected to their point of discovery, and are accompanied by descriptive narratives akin to the material paradigm that is commonly used to log museum and archival entries. Beyond these material descriptions of tangible artefacts are several examples of cultural and personal narratives added to geo-located items on the Mapp by private users. One such item is a sepia toned image of ‘Uncle Syd’, which shows Private Sydney Victor Wheeler in his military uniform, complete with a splendid hat and an even more impressive moustache. The entry to the Mapp, including the accompanying text, shows no immediate correlation to its geo-location, making the encounter slightly disorientating to those with directly relating imagery. However, this indirect encounter with heritage phenomena makes a new connection between the image and the location, and having passed the road that it is geo-located to on many occasions since, I am often reminded of

Uncle Syd in everyday life. The effective power of the phenomena comes from the description that accompanies the photograph:

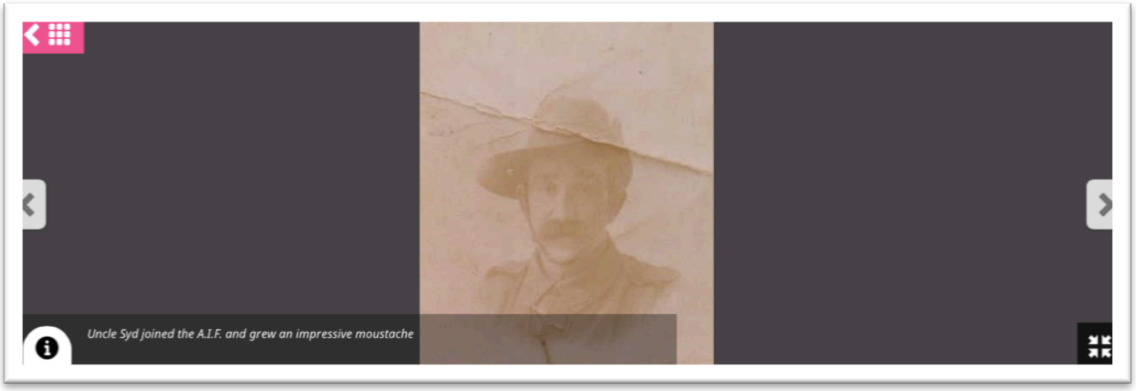


Image 14: ***Uncle Syd Joined the A.I.F and Grew an Impressive Moustache.*** **(Source:** ***Historypin*****/Exeter Quayside).**

Private Sydney Victor Wheeler 3712 was from Redland Bay, Queensland. He was 32 when he enlisted at Enoggera in Brisbane. After training he boarded "A.14 Euripides" on 31 Oct 1917 bound for England. The Australian summer was soon behind them and the "A.14 Euripides" arrived in Devonport, Devon on a cold Boxing Day, 26 Dec 1917. Sadly Uncle Syd spent most of the next 4 months in various hospitals, suffering from chest infections and then pneumonia. He was finally discharged and cleared to rejoin his unit, the 52nd Battalion, on 14 April 1918, in France. He was killed in the Battle for Villers Brettoneux on 24 April 1918 and is buried in the Australian Military Cemetery in Villers Brettoneux (*Historypin*/Exeter Quayside, goo.gl/Ag6vZX).

This narrative provides both cultural and personal interpretations for the photograph, creating an item of locative heritage phenomena that produces an indirect link to a piece of genealogical heritage. Items such as these are

common across curatorial platforms, and demonstrate the potential of community co-curation in unearthing items of phenomena for both engagement and research.

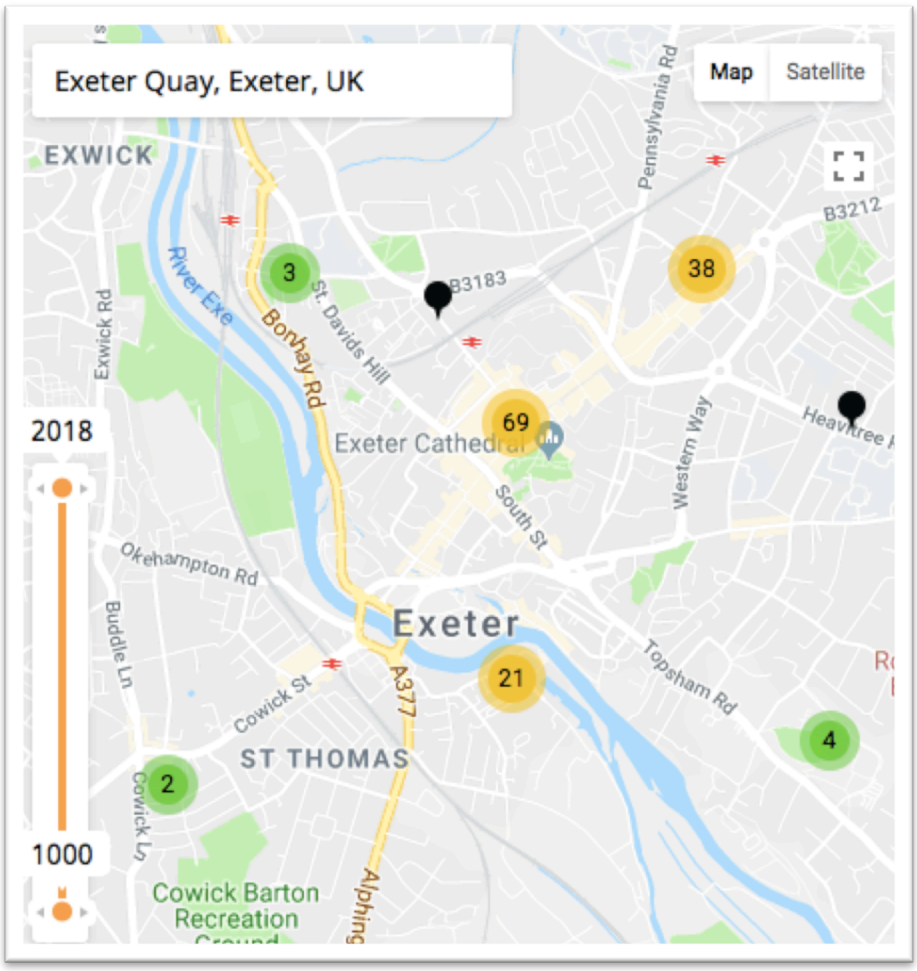


Image 15: ***Map showing Historypin locations across Exeter, including those related to Exeter Quay*** **(Source:** ***Historypin*****/Exeter Quayside).**

Exploring further, of particular interest were three black and white photographs, pinned to the central area of the Quayside by English Heritage. These images, taken of the warehouses formerly inhabited by J.J. Norman and Baker Perkins Limited, were captured sometime between 1945 and 1955, and show the warehouse buildings that were built of local stone in 1835; a

time when the area still operated as a trade network between the city and the canal and sea routes that it is connected to by the River Exe.

Image 16: ***Series of photographs showing everyday life on Exeter Quay in the middle of the 20th century*****. (Source:** ***Historypin*****/English Heritage).**

While the items themselves do not reveal the broader heritage of the Quayside area, my own existing knowledge of the location helps me to place these images in both a historical and contemporary context. Exeter Quay was first used as a port in early history, and was used for this purpose for centuries until the expansion of the railroads began its decline as a shipping area. In the 20th century the area still continued its trade operation, which saw petrol, oil, timber, coal, cement and even potatoes passing through the port. However, the loss of the woolen industry meant that exports dropped significantly (Cornforth 2012). The drop in these types of trade has, over the past half a century, seen the quay reinvented as a place of retail and hospitality, and so the images placed on the Mapp provide a window into the transitional years of this part of Exeter.

In comparison to the commemorative entry provided for Uncle Syd, this series of images provides a more directly connected encounter with the past,

allowing me to compare and contrast my current lifeworld with the historic lifeworld frozen in a moment of time in the image series. In many ways the current scene has not changed, at least from a structural point of view, with the stone worked buildings retaining their original walls and features. However, the use of the buildings is quite different, clearly revealing the changing economy of the Quay. Furthermore, elements of the images provide a clue to the gradual decline of the area as a shipping port, with the warehouses and streets showing no sign of life, especially when imagined against the thriving trade scenes that must have been witnessed here in more fruitful times. The ship on the riverfront however stands as a reminder, or at least a clue, to the once busy connection to the sea, and is to the modern day viewer a contrasting view when compared to the contemporary scene.

Image 17: ***Series of photographs showing everyday life on Exeter Quay in the modern era.*** **(Source:** ***Historypin*****/Will Barrett).**

From a curatorial standpoint, this encounter with heritage phenomena, allied by the technological affordance provided by my smartphone's camera application being linked to the Mapp, encourages me to capture my own series of images of the modern day view. The resultant effect is the curatorial replication of my own compare and contrast scenario, or then and now, where

the original images provided by English Heritage are now accompanied by my own modern day tableaus for future users to learn more about the visual and cultural heritage of the quay. Drawing from the assertion of the thesis that the implementation of material, cultural, and personal narratives, strengthen the effective power of heritage phenomena, my images are also accompanied by supporting text to provide context, and to support the meaning-making process for future users.

5.2.1. Summary.

This brief case study has shown how *Historypin* facilitates the community co-curation of the augmented visual landscape by allowing users to map and explore heritage phenomena through precise geo-located nodes of engagement. Looking at *Historypin* from a broad curatorial perspective, encounters such as the ones experienced in both Bath and Exeter show how the curation of mobile platforms can re-imagine visual phenomena to provide embodied encounters with past scenes and worlds. Connections can be made both directly and indirectly to phenomena, which empowers the user as an active agent of interpretation to augment perspectives of everyday locations. Using photography as the primary tool through which to share and influence new understandings, through navigating encounters these images reveal more than just what we can see in the pictures alone, as these photographs and their descriptions tell personal stories that tap into what Matthew Johnson would refer to as utilising ‘the collective intelligence of a museum’s community to uncover facts and stories that would otherwise be lost’ (2010, 14). In elucidating his thoughts on the value of community co-curation, Matt Chilcott

ascertains that an ‘emphasis on personal yet shared knowledge can unlock often previously inaccessible or intangible cultural heritage and provide rich digital content of both local and global value and resonance’ (2013, 71). As we have seen in this case study this value and resonance is influenced by the interpretations of the user and how the mapped phenomena fits into, and resonates with, their knowledge structure. The result is a hermeneutic approach to the uncovering of heritage narratives and the subsequent production of new phenomena, which contribute to the creation of what David Arnold and Guntram Geser would refer to as a ‘long-term, sustainable local memory institution’ (2007, 49), which places the input of the public the heart of its content creation and development.

5.3. Moor Stories.

Having highlighted in the previous section how mobile interfaces can be used in the exploration and subsequent curation of the digital heritage landscape, this section turns its attention to the production of both factual and creative narratives through mobile engagement. By investigating the research, development, and adoption of the *Moor Stories* Mapp, in this section I explore how the relationship between the platform, its users, and the environment, plays out in relation to the process of meaning making and the production of heritage narratives. As the case study develops below, the focus here is on how engagement with heritage phenomena in both tangible and intangible form stimulates the active agency of users, which is then manifested through the creation of both factual, and creative, personal narratives.

Moor Stories was developed between 2012 and 2013 in collaboration between the University of Exeter, the Royal Albert Memorial Museum and Art Gallery (RAMM) and 1010 Media. The partnership of these organisations led to the development of a website and a mobile responsive website, that allows, and encourages, users to produce stories about the heritage of Dartmoor, including elements such as its landscape, history, and culture, as well relating to objects in RAMM's collections that relate to the region. The original aims of the project were to facilitate the encounter with, and interpretation of, museum objects outside of the traditional museum setting, in order to stimulate reflective and creative responses about the relationships between these objects and the sites and oral histories of Dartmoor where they originated.

In realising the project aims, funding for the digital components of the exercise came from the Research & Enterprise in Arts & Creative Technology (REACT) Knowledge Exchange Hub for the Creative Economy. REACT was formed as a collaboration led by UWE Bristol (the University of the West of England), Watershed and the Universities of Bath, Bristol, Cardiff and Exeter, with funding provided by the Arts and Humanities Research Council (AHRC). The project team for Moor Stories, headed by Gabriella Giannachi in partnership with RAMM Digital Media Officer, Rick Lawrence, secured further funding from the HEFCE Open Innovation Fund in April 2012 to connect the museum's collections from Dartmoor with their original locations and modern communities through digital media. Further funding from REACT in January 2013 enabled further research and development to deliver the website and mobile responsive website. Working as part of the research and development

team, my role was to identify specific user groups in order to design and frame the content for their use, and to subsequently investigate how these users responded to digital artefacts and the environment in creating narratives related to heritage phenomena.

In terms of phenomena, Dartmoor is rich in both tangible and intangible heritage. Known for its tors and hills, and named after the River Dart that flows across its terrain, Dartmoor is an area of outstanding natural beauty located in Devon in the southwest of the United Kingdom. From a heritage perspective the region is rich in geological, architectural, and cultural history. Its prehistoric history can be traced back to the Neolithic and early Bronze Age period through the presence of numerous standing stones, Menhirs and Cairns that litter the landscape, while there are also numerous medieval settlements, some ancient tenements or farms, as well as sites and surviving buildings from the tin mining industry. In more recent history Dartmoor Prison stands as a reminder of the Napoleonic period, when it was built to house inmates captured during that conflict. Of course these are just a few prominent examples of the situated phenomena that are scattered across the region, but this brief summary of the landscape reveals the potential for visitors to make meaning from their surrounding in the creation of narratives.

The potential for narratives to emerge in association with this landscape can be seen in numerous works of popular literature, such as Conan Doyle's *The Hound of the Baskervilles* (1902), the story of an attempted murder inspired by the legend of a hound, and Michael Morpurgo's *War Horse* (1982), whose

sprawling pan-European adventure, set during the First World War, originated from the local parish of Iddesleigh. The region is also famous for many folk tales, including that of the *Hairy Hand*, which haunts a stretch of the B3212 and has terrified children of the local area for years, and the *Ghostly Legionnaires* that can allegedly be spotted on Hunters Tor during a full moon. Unsurprisingly, Dartmoor has been written about on numerous websites, such as *Legendary Dartmoor*; or the National Park's own map of *Dartmoor legends*; *Dartmoor Archive*, an online database of images relating to Dartmoor; and *Moor Memories* and *Virtually Dartmoor*, each of which aimed to collect stories by people who live on the moor (Giannachi 2012). In continuing this trope, *Moor Stories* sought to act as a guide to the heritage of the region, as well as to encourage users to create their own stories in relation to its phenomena; its landscape, culture, and material remains, in situ via the Mapp.

In developing the platform, the additional funding allowed the project team to work alongside a number of external partners, including Calvium, a leading expert in mobile app development, and the designer, Mike Godwin, who created the look and feel for the platform. Further work was also carried out through consultation with members of history groups local to Dartmoor, including Peter Mason of the Lustleigh Archive and Bill Hardiman of the Moretonhampstead Local History Society. In addition the project received support from Jane Marchand, Andy Crabb, Keith McKay and Mike Nendick from Dartmoor National Park Authority (DNPA) whose main tasks are to conserve and enhance Dartmoor as a vibrant, living, working landscape and

community, to work in partnership with local and national stakeholders and support Dartmoor's businesses and communities (DNPA 2017).

Each of the above individuals and groups were consulted as part of the iterative research and development phase of the project. A shared belief amongst all stakeholders was that a platform that facilitates the development of storytelling about the moor could be a valuable resource in not only exploring the heritage landscape, but also in documenting otherwise untold stories and information about the region. Through several workshop sessions we worked intently with these individuals and groups to identify the key components needed to structure the platform in order to support the fundamental goal of generating these narratives. Central to the considerations was the map element of Dartmoor. The region spans 360 square miles and receives 2.39 million visitors per year (UK NPA 2001, 1), so some mode of orientation was required for a wide range of potential users, many of whom might not be familiar with the geographical expanse of the moor. It was also identified that contextual information would strengthen participants' responses to the Moor, and its associated phenomena, and so additional sections related to differing time periods were added to the platform in order to further users understanding of the time depth of the area. Both the map and the time period sections provided the contextual apparatus required by Mapps to support phenomenological encounters with heritage environments. As shown in the previous chapter this enables users to connect the tool in their hand to the world around them, not just as they see it before them, but also in interpreting its history and heritage.

Central to the research and development phase was the investigation of the kinds of narratives that users might produce about Dartmoor in response to engaging with heritage phenomena. As evidenced in the previous investigation into interactive Mapps, mobile-driven heritage platforms causes users to respond to heritage phenomena based upon their own pre-existing knowledge or through comparisons to what they see before them, both in terms of their current lifeworld and the phenomena as displayed by their smartphone. In developing *Moor Stories* the first intention was to see how users might respond to physical phenomena and contextual information, in order to ascertain how this process of personal interpretation could be transformed into the mobile experience.

One prominent group who engaged with this phase of the research and development process was formed by a number of KS2 classes from the Exeter-based St David's and St Leonard's schools. In doing so site visits were made to each of these schools, in order to explore further ideas for the platform and also to create stories for the Mapp. During this phase of the project, my aim was to explore the test groups' responses to heritage phenomena, in order to evidence that multiple narratives can be formed through engaging with tangible phenomena, as well as digital reproductions.
Visiting St David's school in February of 2013 the team worked with the Blue class, taught by Ross Sloman. The class consisted of 30 children spanning 7-9 years old and had recently been visited by an archaeologist from the University of Exeter, so the children had some knowledge of the types of

materials often unearthed in the region through excavation. The group had also been studying Dartmoor as part of their local history project, and therefore had their own constructivist driven understanding of the geography and heritage of the region, as well as knowledge of some of the stories noted previously in this chapter, each of which were inspired by the area's landscape and culture. In lieu of engaging with heritage phenomena within the context of Dartmoor, these prior experiences were vital to the process, as the constructivist-driven knowledge of historic materials and the contemporary landscape would influence and support the production of narratives during the session.

In order to test the user group's response to physical phenomena from the collections at RAMM, the children sat at five tables, each of which were equipped by two or more computers, and the pupils of the class were introduced to some of the museum's archaeological collections by RAMM's Curator of Antiquities, Tom Cadbury, in order to provide a clear introduction to the historical significance of the artefacts, as well as the material and cultural aspects of the selected phenomena. These items included an assemblage of flint tools and various pottery pieces from RAMM's handling collection, designed to illustrate the lifeworld of hunter-gatherers and early farmers. The children sat eagerly in anticipation of the phenomena as they were shared around the room, and instantly each group began to engage with the materials, using their existing knowledge and interpretive capabilities to describe their form and function, as well as to imagine unearthing these materials from the ground, thus evidencing the constructivist approach to

meaning-making that underpins the theory and framework of phenomenalisation outlined in chapter three of this thesis.

The session continued with talk to the group about the history of Dartmoor, led by Cadbury, which was designed to provide additional contextual information about the phenomena that had been distributed around the room. The talk was also supplemented with pictures of people, dwellings, animals, and landscapes, each of which were used as visual stimuli to support the objects. In the discussion that followed, the group was encouraged to talk about how we might develop personalised relationships and stories with these objects to understand the role that they play in understanding the history and heritage of Dartmoor, and hence their value to us in the present day.

This creative curatorial process was explored by encouraging the class to develop their own stories, either in text form, or through the production of annotated sketches. Selecting an item from the handling collection the children worked either individually or in groups in producing these materials with a real enthusiasm. Despite the absence of the contextual surroundings of Dartmoor in this phase the presence of these objects focused the intentionality of each participant, while access to the Moor Stories site via their computers allowed them to refer to the supplementary information provided by the early wireframe version of the platform. The children were encouraged to look at each item and to touch it, and were provided additional affordances designed to help them to describe the objects from varying perspectives:

1. Describe where you think you were living at the time you had this object and what kind of landscape you imagine you were in.
2. Describe what you think you were doing with the object you chose and what it meant to you (did you buy it?; was it expensive?; did you make it?; what would you trade it for and why?).
3. Describe how you personally feel about this object now and what it means to you now that you have touched it and written about it (Moor Stories Blog).

Each of these questions were designed in order to replicate the affordances offered by the mobile device, and allowed us to examine the responses produced by the participants. These specific questions were chosen in order to aid the participants in projecting their own constructivist driven approach to interpretation, based on the theory that all users will respond to heritage phenomena from a range of perspectives, and thus produce new knowledge through personal interpretation. In facilitating the exercise, each member of the team (i.e., H. Burbage and T. Cadbury, RAMM; G. Giannachiand W. Barrett, University of Exeter), as well as Mr Sloman and his classroom assistant, Mr Glyn Meredith, circulated between the five groups, offering advice on technology (Burbage); history (Cadbury); engagement (Sloman; Giannachi and Barrett); archaeology (Barrett) and creative writing (Sloman and Giannachi). By imagining how these objects were used in daily life, the children took on the role of investigators and curators of content, writing about how they thought people lived at the time. In addition some of the participants had time to add their stories to the site, using the initial wireframe. The stories,

a selection of which are presented below, were inspired by the stone spearheads provided as part of the exercise, and incorporate elements of both the children's experience of the moor and the information provided to them, both by the workshop and previous elements of their project. In total 43 stories were produced for this particular exercise, and the ones presented here represent the key characteristics of all of the material produced.

The First Generation (Jack, Bryony and Lamb):

Trying to catch a mammoth! 9000 years ago, a group of men in a wet, cold cave were planning their attack on the wooly mammoth. One had an idea of using spears but it was an epic fail because the mammoth was too strong and the spear accidently hit a bird. Another one had an idea to randomly charge at the mammoth but again it was an epic fail because the mammoth was to fast. The third and final had an idea of chasing it off a cliff edge whilst holding their spears. The cavemen laughed and said "THAT WILL NEVER WORK!" they chuckled. The next day the men went out to find the mammoth. Eventually they found it and started chasing it to the edge of the cliff. But the mammoth was not killed so the man that came up with the idea threw his spear straight at the mammoth and it died. Then they settled down and made a [fire] to roast the mammoth and ate it. THE END.

Image 18: ***Stories added to the site as part of the St David's workshop.*** **(Source: Moor Stories Blog).**

The Lost Stone (Charlotte):

A story of the Stone Age and the life of a hunter and the epic journey through storms. One day 6000 years ago the group were traveling through the toughest of weather the hail was bucketing down and some one was in too much of a hurry and dropped the chief's dagger they stumbled into the nearest cave leaving it behind they killed the ram stuck in the tree it was good and they fell asleep the dagger was lying.

The production of stories at St David's school illustrated the differing ways in which narratives may be created in conjunction with heritage materials and

associated landscapes, and advanced the research and development of the platform by helping us to recognise the value of creative narratives in the co-curation of heritage interpretation. The stories, written in just thirty minutes, are filled with detail and imagination, offering perceptual data about living and environmental conditions. Creative in their very nature, all of the stories are fun to read and show a great deal of empathy to the phenomena and its perceived lifeworld. It was very encouraging to witness the precision and accuracy with which some of the children developed the fiction around the object, naturally including the material, cultural and personal paradigms in their writing.

To support the findings of the research and development phase, a subsequent workshop at St Leonard's school followed a similar model to the one at St David's, however on this occasion the session was incorporated into the Big Write lesson, which aims encourages children across all schools to produce a piece of factual or creative writing based upon a subject they are studying at the time. The aim is for pupils to engage in an independent period of extended writing, and provided the opportunity to demonstrate the creative agency of engaging with heritage themes and phenomena. On this occasion the team worked alongside three teachers, Mr. Sam Jones, Mrs. Ruth Milankovic and Mrs. Wendy Daurge, in engaging two year 5 classes in the activity.

Once again, armed with his case of handling objects from the pre-historic to medieval period, Cadbury introduced the groups to the history and heritage of

the moor, while Burbage gave an introduction to the Moor Stories website. The task for the children was to write a story about the object, or to include the object into a story. More specifically, a particular affordance was incorporated by asking the children to play historical detectives and work out: 'When, Where, Why, What and Who' in relation to each object. With these questions in mind, the children could analyse the objects, produce a map and then use the map to write a longer story at a subsequent point in time.

Across the two classes there were subtle differences in the approaches taken by each of the teachers, iterating the range of ways that the curation of heritage driven narratives can be stimulated. While Mrs. Daurge asked the children to imagine the person they were and think of how they were going to work with each object in their daily life, in the other classroom, the groups were encouraged to think of a problem that their story could hinge on. In the end, all children had slightly different takes on their instructions, with Ted, for example, asking if he could write his Moor Story as a diary and Libby preferring to focus on identifying important details about the artefact itself, almost regardless of plot constrictions (Giannachi et al. 2013). As with the previous workshop I wanted the phenomena to be central to the activity, and so materials were distributed across each classroom for tactile interaction and investigation. Regardless of the approach to telling their story, whether it be visual, in diary form, or a more traditional narrative with a beginning middle and end, the participants used the phenomena, as well as the digital versions used projected onto the interactive whiteboard (see image below), supporting

the children in their reconstruction of the past, and to form the central frame of their narrative.

Image 19: *St Leonard's School Workshop*. (Source: Moor Stories Blog).

While not applied contextually via the app itself, the activity demonstrated once again how digital interaction should be linked as closely as possible to the moment real life activities. The role of affordance in encouraging and framing the user experience is also vital, and finding the balance between clear instructions and flexibility of output are always going to be a key consideration and challenge in developing any digital heritage asset. As a result of this consideration two learning packs were developed, one for young learners and one for generic learners, each of which were linked to the website as downloadable PDF files. The teachers of the school groups that were consulted in the design process deemed this content of particular value as it would allow for them to access easily downloadable resources for future exercises. Additionally the teachers were pleased that the children had been

central to the design and evaluation of the work, and that all images published on the site were to be listed for use under Creative Commons.

A final output that emerged from the workshops and discussions was the inclusion of a short video, presented by Tom Cadbury, to explain the aims and purpose of the site. Other recommended features included 3D or 360-degree rotational objects to engage with via interactive white boards, or via tablets or smartphones, however budget restrictions resulted in this element being recommended for future consideration. This final element could be of particular use for understanding phenomena, as items can be engaged with in a more haptic fashion, thus providing the user with a greater understanding of the physical and material paradigm of the object, in terms of its shape, form and function.

As a result of the consultations and the research findings of the workshops, the completed design for *Moor Stories* included five main sections: *Home, Map, Time Periods, Add Your Story*, and *About* (which gave information about the project background, and external links to the RAMM collections website). This ordering and streamlining of content via these components was vital in reducing the need for navigation via mobile, and to give clear instructions to the user in terms of affordance and interaction. The home page included the introductory video and a selection of the most popular contributions to the site, in order to stimulate the user in participating in the experience. The map was central to both the design and user experience in that it acted both as a

navigational tool for exploring, as well as an orientation tool to look at stories, phenomena and information pertaining to the location of the user.

Furthermore, in identifying the number of different narratives that may be contributed to the platform, three story types were identified: factual, schools, and creative, in order to differentiate each of these genres for those involved in the prosumption of the content to help users identify the type of content most relatable to their own interests and aims. Additionally, the contextual historic information, generated in collaboration with RAMM and the NPA, was separated into six consecutive time periods (origins, prehistoric, Roman, Medieval, Victorian and Modern), in order to provide an introduction to the history of the moor, and to provide the type of education grounding that was facilitated by the project team during the workshop phase.

The functionality of the Add Your Story Section required users to follow three key steps, which required the user to provide essential story info, such as the name of the story, the location, relevant time period, and any landmarks or places in the story. The second step recognised that story telling is relative to the medium available to us as narrators. Drawing from the empirical analysis in the previous case study, which shows that the production of narratives via mobile platforms utilises different forms of digital outputs, the options presented allowed for the addition of not only text, but also images and video, and a mix thereof. To imitate the context provided to the participants of the workshops, additional content was added to the platform in order to provide geographical information and an introductory history of each parish on

Dartmoor, while further details were added relating to objects that are connected with the physical and cultural landscape of the region. These locations, objects and information tied to them represent the factual element of the site, and aim to convey both an understanding of the material past and also a sense of context for the historical artefacts in the museum's collection.

While straightforward in many ways, the development of this platform was not without its drawbacks, or challenges. One of the primary considerations was that of access to specific locations. Unlike urban environments used in conjunction with digital engagement, as seen through *StreetMuseum*, *Londinium*, and *Time Trail* in the previous chapter, where users are free to roam the streets of the city as they wish, Dartmoor has a number of restrictions as to where visitors can go. For example, while in London users of Mapps may be able to visit the site of an excavated item, on Dartmoor a location such as this may be restricted due to private land boundaries, or indeed by particular portions of the terrain being utilised for firing practice by the Royal Marines. As a result items and stories could not be tied to specific spots via GPS, but rather to more broadly defined regions. As a result of negotiating this particular challenge it was decided that rather than guide users from one location to another within a specific area, the map would be divided by parish boundaries, with the information presented in relation to these areas. In this instance the nodes of engagement are broader than others demonstrated thus far. Where with other Mapps, such as *Street Museum* and *Walkabout St Ives*, the nodes are site specific, for Moor Stories the nodes of engagement are delivered as broader sub-regions of the Moor.

While less intimate than the traditional node model of engagement, this approach meant that instead of focusing on one particular phenomena at geo-located at points of engagement, user's stimulus would stem from the accumulative presentation of phenomena from each of these sub-regions, depending on their visiting preferences, and remaining in line with the free-choice model of participation as outlined by Falk and Dierking (2006).

In researching user engagement with the developed platform, participants were encouraged to explore the landscape, its histories, and its traditions, and leave their own trace on the heritage landscape by contributing their own Moor Stories to the map. The investigations occurred over the course of several months and visits to the moor in 2014, where I accompanied users on their visit, in order for ethnomethodological observations of the Mapps use to be gathered. An early, and quite obvious, element to mention here is that these studies took place 'in the wild', outside of the classroom environment used in the earlier research and development stage, and with an older demographic user group. The aim of this was to test the Mapp in everyday scenarios with users with an active interest in exploring and engaging with heritage and culture, in order to study both how they used the platform in navigating the region, as well as to assess the ways in which they drew from their surroundings in order to add their own constructivist driven narratives to the Mapp.

One of the observable elements of the study was that each user saw the activity as supplementary to their pre-existing plans. This is of particular value

to the research, as it creates an organic user experience based on users everyday experiences. One significantly observable feature across all 14 users in the case study was the desire to use the Mapp to orientate with their surroundings. Both the map and the about section were accessed by users towards the beginning of their experience, while the time periods section was only activated by 72% of users. For those who viewed the material it was deemed as a valuable feature, with selected responses revealing that it helped the user in 'making a connection between the museum and the moor' and that the feature 'provided a succinct and interesting history of the landscape'. Those who didn't access this feature gave no sufficient reason for not activating the page, other than they 'didn't really feel [they] needed it' or because they had already used it as a pre-visit tool.

In terms of phenomenalisation, the time periods section served its role in providing additional context to the user experience, however the use of the Mapp itself in inspiring users to explore and investigate the landscape is the primary concern. As stated each participant arrived at the moor with a particular set of aims and were interested to see how they would respond to the additional feature of the *Moor Stories* Mapp. One observation, particularly in relation to the case studies that looked at interactive Mapps, was that users as a whole were less intent on looking at their phones to guide them. In essence, while the use of *Moor Stories* was part of their experience, it was not the experience itself. This is what sets curatorial Mapps such as this one apart from interactive Mapps in that the primary aim is to provide a platform for users to share their own materials. In relation to this, the affordance of having

the Mapp, or tool, to hand encouraged all users to think more intently about their surroundings. As a result of this exercise a number of stories were added to the Mapp, although none were added in situ during the course of the ethnomethodology. The main reason for this being intermittent connectivity on the moor, particularly in remote regions, and so each user used the notes section of their phone to document their thoughts and interpretations in order to produce their stories at a later time.

One primary effect of using *Moor Stories* was that users reflected on their place in the environment from a temporal perspective. Many spoke about the time depth of the moor, imagining those who had been here before, with one participant pondering the 'barren nature of the land, and [wondering] why would settle anyone here'. Other participants, who had more pre-existing knowledge of the heritage of the moor pointed to the ways in which former inhabitants would negotiate the elements, while some pointed to the presence of stone circles and considered the landscape as a 'truly spiritual place'. In all circumstances users were influenced by their own pre-existing concepts of the moorland, perhaps showing a lack of affordance in the presentation of the platform in stimulating differing points of view in situ. One aspect that did have an impact on these visitors was the physical environment and the elements. It has already been noted that mobile heritage experiences are influenced by these factors when 'the sunshine, wind, bustle of the city and the smell of the grass will create an additional layer of sensory information into the museum experience' (Sinclair 2007, 62). While not set in the city, this influence of

external stimulus was apparent through the use of Moor Stories, and can be witnessed in a number of the stories added to the site.

In total 139 user contributions, containing, as expected, a mixture of creative and factual narratives, were added to *Moor Stories*. The creative stories such as the one listed below has been influenced by the seasons, thus demonstrating how interpretations in the museum without walls are subject to the elements:

Summertime (Wendy Carrow).

Sun shines Then it rains Lightning flashes Blocked drains.
Sore backs Plant Sales Blooming flowers Dirty nails!
Tennis grunts Summers come Happy people Insects hum
Being warm Holiday fun Winter'll come Enjoy the sun.

Others stories are equally imaginative, such as *The Mesolithic Hunters* and *Farming Thoughts*, each of which are shown below. However, as with the narratives created during the workshop phase of the project, these stories also make connections between tangible phenomena and the heritage environment in the creation of their narratives,

The Mesolithic Hunters (Sabrina).

It was a warm, sunny morning for the small Mesolithic community in, what is now called, Carrapit farm. The temperature would have been a little warmer than today. Some Mesolithic hunters gathered their spears

and equipped themselves with bows and arrows, ready to hunt into the woods. They set up traps for small game and hiked the woods in search of larger animals such as aurochs and deer. They spotted an auroch and moved closer to the beast quietly with bows and arrows and spears ready to attack. A hunter fired his arrow into the beast, delivering a fatal shot. The hunters approached the dead animal. Removing the arrow, its stone tip left embedded deep in the wound. One auroch could feed the whole community for days. The hunters cut up sections of the auroch, for easy transport, removing those parts that are not needed such as the hooves and carried useful parts including the antlers and of course, meat. Meanwhile, back in the camp, those who did not participate in hunting contributed much of their time doing something else.

Activities here are often carried out as a community. Men and women, the elderly and the children participated in making tools. Children learned from the adults on how to make microliths, which would later to be slotted in bone or antler shafts to make harpoons, arrows, spears

and fish hooks. Just before sunset, the hunters returned to camp and others were marveled and satisfied by their catch of the day. This means that the community would not get hungry today! Meat was distributed and cooked over hearths in houses where socials also occur. The community probably settled here for many months but they moved seasonally. When the time comes, they would pack up their belongings and tools and dismantled their houses. Some items may be left behind accidentally or deliberately as these objects are found today as artefacts.

Farming Thoughts (author unknown).

Whenever I see the objects from Dinna Clerks in the museum I always wonder what life must have been like for the people who used them. Very hard I imagine but with the rewards of views and wildlife that come with living in the countryside. I like to imagine them enjoying the summer sunshine even if winter was cold and smoky in the farmhouse! The museum has a toy longhouse in the Making History Gallery. I wonder if the people who lived at Dinna Clerks smiled as much as the little wooden longhouse dwellers do?

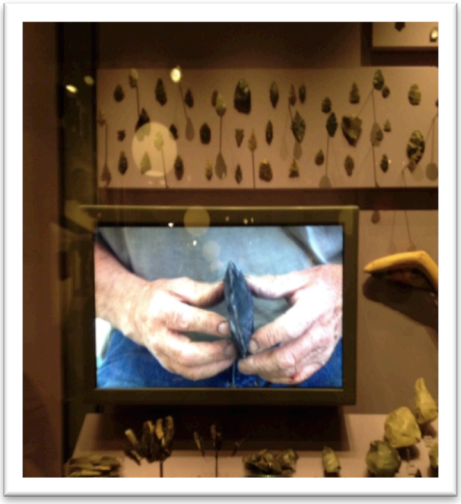
These example narratives are neither factual nor false; they are, as Merleau-Ponty would claim, ‘not a reflection of a pre-existing truth, but, like art, the act of bringing truth into being’ (1962). In essence these stories are a creative embodiment of each of the authors’ reflections on the heritage of the moor, and thus are personal interpretations of Dartmoor and its related phenomena,

both tangible and intangible. Each story belongs at two points of the lifeworld spectrum, being that they are written in the present, while also projecting the users towards a particular time, or era, of the past. Like stories such as Arthur Conan Doyle's, *Hound of the Baskervilles* (1902), these offerings in their own small way become part of the heritage of the moor. By being digitally mapped to a region, the stories then also become part of the experience of future users, thus perpetuating the potential of the co-curatorial approach to exploring digital heritage through smartphone driven platforms.

This addition to the heritage record of the moor was also in evidence through the factual stories added to the Mapp. Users added a whole host of stories to the Mapp in order to share additional information about particular elements or regions of the moor. Of these items, such as the caught knapping story shown below, many showed the presentation of personal narratives intrinsically woven into the content provided.

Caught Knapping (author unknown).

Growing up in the Chilterns and West Sussex I saw plenty of flint both in the fields and in museums. Studying archeology in the 1970s my first archaeological drawings were of flint implements and moving to Devon rekindled my interest in all things flint



> after seeing RAMM's prehistoric collections. I've never spotted a piece of worked flint while walking on Dartmoor but do keep my eyes peeled. Especially in areas where flint objects were found, like around East Week. In the museum I always pause to watch the flint knapping video and marvel at the precision that is achieved using a piece of antler. Wish I could do it but attempts have not gone well. I'm obviously not in touch with my inner prehistoric craftsman!

Each of the stories presented here provide strong examples of the type of material added to the platform by its users in forming a publicly co-curated assemblage of multiple narratives, each born from a range of viewpoints constructed by people's individual creativity and personal knowledge. As a project designed to research and develop heritage engagement outside of the traditional space of the museum, the observations and analysis of the text reveal the myriad of ways in which users might respond to locative based heritage mobile applications, or Mapps. Combined with the workshop research conducted in schools, the empirical research for this chapter has shown how the combination of heritage phenomena and publishing platforms can be used to foster the investigative role of the user, and stimulate rich a varied heritage content.

5.3.1. Summary.

The nature of the material generated via *Moor Stories*, both factual and fictional, shows the benefits of merging the physical elements of the cultural landscape and the digital. Firstly, *Moor Stories* allows users to explore the

past in context, by placing artefacts and historical information relevant to the places they originated from. The mobile optimsed website provides users with the opportunity to view stories relevant to the areas they either wish to visit, or indeed are in themselves, and this connected relationship allows users to understand the cultural environment of the moor and to develop a stronger understanding of the purpose and relevance of the items displayed from the museum's collections.

In the traditional museum setting 'every visitor interaction is story-making as visitors fit portions of our collections into personal frames of reference; most often in ways we neither intended nor anticipated' (Tallon & Walker 2008, 109). With *Moor Stories* this phenomenon occurs through interaction with heritage phenomena outside of the museum walls, and is demonstrated through the material produced for this case study. The evidence shows that *Moor Stories* provides users with the opportunity and stimulus to share their thoughts, knowledge, and creativity with other visitors to the site and mobile content. Where *Historypin* facilitates the community co-curation of the augmented visual landscape, this particular platform allows and encourages us to return to the old oral traditions of storytelling and the passing on of knowledge that are associated to the heritage of Dartmoor. As a whole, this platform represents phenomenalisation by showing how digital technology can be used in order to immerse oneself in the cultural landscape of an area of rich and varied histories and traditions. More pertinently, it also provides a connectedness between people, the museum, and each other, while delivering on its aim to create a digital record of a landscape through an

interesting cultural mixture of exploration, creativity and the production of knowledge.

5.4. Placeify.

Having looked at the production of new knowledge through digital storytelling in the case of *Moor Stories*, this section now returns to the creation of Mapps as a form of narrative building and community co-curation. By looking in detail at *Placeify*, this section will show how Mapps can be used holistically in the creation of heritage trails, the metaphorical excavation of everyday landscapes, and the sharing of new knowledge through curatorial affordances. In addition, one of the questions regarding digital heritage applications is whether they will merely improve the efficiency of current heritage institutions, or will they help to build an evolving, more inclusive collective memory' (Niccolucci 2007, 101), and this section will demonstrate how Mapps can be used in through a range of activities designed to achieve this goal.

Placeify was developed in 2014 by building upon the content delivery system produced for RAMM Time Trail (as discussed in chapter 4). Adopting the existing GPS mapping system, additional functionality was added to the Mapp, allowing users to comment on existing trails through text and images, whilst also allowing them to create their own digital trails by signing up to the platform. The term used for the platform suggests 'to make something of a place', and the Mapp was designed in order to generate physical trails that could link places with digital data (Giannachi 2016, 77). The team behind

Placeify included myself, Gabriella Giannachi (University of Exeter) and Andy Chapman (1010 Media). In Giannachi's publication, *Archive Everything* (2016), the main focus of investigation is how digital tools, such as Placeify, can be utilised in the everyday in order to establish new practices of memory making that actively involve archival materials in everyday life (2016, 77), while the research for this particular chapter looked more closely at the expansion of heritage narratives through the utilisation of smartphone-driven Mapps.

In developing Placeify, workshops were held with a number of museums based in the South West of England, including Topsham Museum, Sidmouth Museum, Tiverton Museum, Newton Abbott Museum, Barnstaple Museum, Royal Cornwall Museum, Mevagissey Museum, The Museum of Witchcraft, Wheal Martyn, Padstow Museum, Bodmin Museum, Exeter Civic Society, Fairfield House, Devon Garden Trust, and St Ives Archive, as well as the Exeter Civic Society who used the platform to create an audio trail to support their Blue Plaque Scheme in Exeter. Each of these heritage organisations used the workshops held in Exeter, Devon and Hale, Cornwall, to learn about the content management system of the Mapp, as well as to generate their own trails related to phenomena held in their museums that they connected to their local and regional environment.

An assessment of these trails allowed the team to see how heritage practitioners may use such a platform in order to instigate engagement outside of the museum itself. The result was a broad array of trails displaying

phenomena in contextual locations that included items as varied as a rare print collection, physical monuments, and even items of the occult, each of which were presented and supported by text, photography, film, and audio content. Each museum chose to place phenomena from their collections at their point of origin, either in terms of production of use, or in relation to the point of discovery or excavation, resulting in Mapps whose methodology will be familiar to the reader at this point, having similarities in approach to those interactive Mapps discussed in the preceding chapter of this thesis.

An example of this is Sidmouth Museum's '*Then and Now'* trail, which was designed to allow users to explore the heritage of the town as represented by the museums fine and rare prints of the early 19th Century. Designed by two volunteers from the museum, the prints are geo-located in reference to the scenes depicted by the prints across thirteen nodes of engagement. Influenced by the concept of affordance the opening splash screen was designed to urge users to explore the town in order to find the houses shown in the prints and to encourage them to use their thoughts, creativity, and camera skills to capture what has changed from the then and the now. Testing of the trail was conducted outside of the workshops to allow the volunteer team to more accurately geo-locate their images, in order to make the strongest possible connection between the digital image and the modern day scene.

Subsequent user testing was conducted with a small user group, including 5 people who had lived in Sidmouth for a minimum of 10 years, and 5 others

who had a less familiar relationship with the town. The result of the user testing showed that those who were most familiar with Sidmouth found the trail to be the most informative in terms of its transformation. When someone has lived in a place for any length of time, change is most notable for events within their own timeframe of experience. For these users the trail served to highlight the broader heritage of the town's architecture from this perspective, and to project their view of the town to the 19th Century from when the prints originate. In comparison, those who had little to no knowledge of Sidmouth responded positively to the trail as an orientation tool; using the Mapp to explore both then and now. In essence, for all of the users this exploration of Sidmouth, its architectural history, and the rare historic prints, served to introduce new geo-spacial and temporal understanding of this historic seaside town, albeit through a particular window as selected by the creators of the trail. One of the most positive aspects of this for those who created the trail was the fact that these prints are rarely seen by the public due to their fragile nature, and so to reimagine them this way was felt to have not only helped others to see a new perspective of Sidmouth, but also gave the co-curators a new perspective on this particular collection of heritage phenomena.

While the museums such as Sidmouth chose to Mapp phenomena from their collections, thus making content previously held in the museum viewable in context, the Blue Plaque scheme was successful in engaging audiences in discovering the plaques that are already in place across the city of Exeter. While the Blue Plaque schemes are a familiar site across locations in the UK, they can often go unnoticed in everyday life. People who live in a place may

often be unaware of the history and heritage all around them, as displayed by these plaques, which are most often circular, and of course blue. In addition, the information displayed on each plaque is, by necessity of space quite succinct, detailing minimal information such as the name, lifespan, and connection of the person in question to the location, so the Mapp was utilised to add additional contextual narratives related to the lives of the individuals celebrated by the plaque. This served to broaden the narrative of the plaque, both at individual locations and as a whole, creating a trajectory of engagement that connects the user to the lives of notable figures deemed worthy of remembrance.

Away from these established repositories and sources of heritage phenomena, the main focus of this case study centres upon Exeter City Football Club (ECFC). Formed in 1901 as St Sidwell's United, the football club, located in the St James area of Exeter, has operated under its current guise since 1904, when a meeting of its founding members decided to rename the club in order to announce itself as the City's primary association football club. The club has a rich and varied history, including amongst its numerous highs and lows an historic match against Brazil in 1914. This match was the first ever to be played by the five times world cup winners, and marks a significant moment in the history of the respective teams involved. The 100-year anniversary of the trip to Brazil gave the Supporter's Trust added impetus in its efforts to share the history and heritage of the club. An exhibition, book and play, each titled *Have You Ever Played Brazil*, by Keira Gould, Aidan Hamilton and Nick Stimpson, respectively, were produced in

2014 to mark the event, each of which brought together different aspects of heritage phenomena in the telling of this particular narrative.

Of course, given the longevity of the ECFC, the history and heritage of the club goes far beyond the intriguing tale of a provincial English football team travelling to the South American continent, and previous heritage work, funded by the Heritage Lottery Fund in 2009, had been led by Andy Fuller in order to share memories, memorabilia, photos and any items so as not to just focus on formal reporting methods but also record the memories of fans throughout the years (ECFC AGM, October 2009). This project, titled Grecian Voices had seen the creation of a short film, as well as an increased interest in the collection, preservation and sharing of heritage phenomena at the football club. Building upon this work, *Placeify* was used by the Supporter's Trust, and Football in the Community (FITC) as a means to make connections between its heritage phenomena, both tangible and intangible, the surrounding city, and members of the community.

The first of the Exeter City Football Club Mapps was produced by the Supporter's Trust, in collaboration with the *Placeify* team, for users to explore St James Park, as well as to extend the heritage narrative of the football club beyond the walls, or perhaps in this case, the stands, of its traditional home. From a curatorial perspective this Mapp served to provide this function on two levels, both in the curation of the trail itself, as well as the annotation of the trail by users. Looking at the first of these levels, the process was initiated to allow the curatorial stakeholders to assess their collections, and their history

and heritage, in order to build a coherent narrative for engagement. Looking at the curation of the trail from this perspective the process involved a lot of investigating into various types of phenomena.

The club, although engaged in various heritage activities, had at the time no formal procedure for the collection, cataloguing and display of items. As a result the process involved sifting through various items, each tucked away in cupboards around the main building at the park, as well as the analysis of primary and secondary materials in the form of written materials and oral histories.

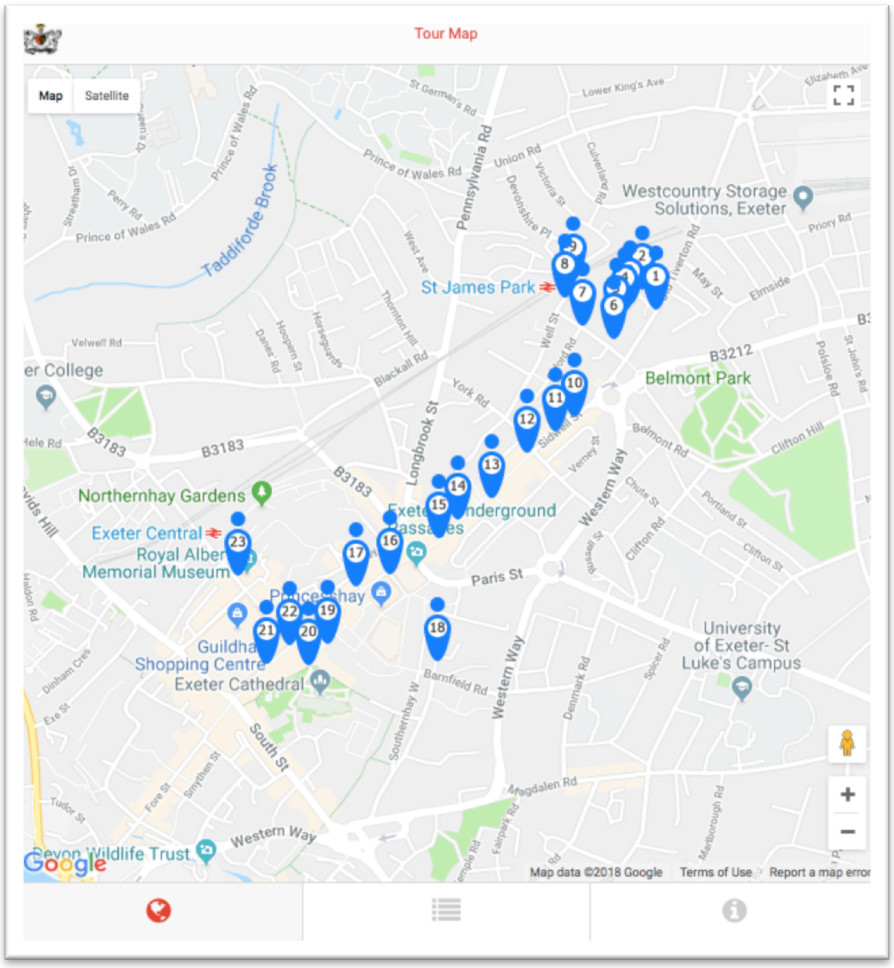


Image 20: *Exeter City Football Club Tour/Trail Map.* (Source: *Placeify*/ECFC).

The value of each item individually varied greatly, both in terms of economic, personal, and community value, but when combined together these resources served to create a coherent narrative that utilises digitised phenomena to make connections between the heritage of the football club and the local area. For this trail hybrid locations were at the heart of creating the narrative, and as the research progressed a total of 23 locations were chosen as new items and associated narratives emerged.

The trail begins at the ground itself and ends at RAMM, where an exhibition about the history of the club had been held in 1991. The result is a collaborative co-curation of the heritage of ECFC, which in essence acts as both a way for people to engage with the history of the club, but also as a memorial to its past. At the opening node, simply titled ‘St James Park’, users are introduced to ECFC and their first ever match (under that name) in 1904, as well as a feature that no longer stands there:

> Exeter City FC’s first match was held here at St James Park on 10th September 1904. The team won 2-1 against the 110th First Royal Artillery. The winning goal was scored by Sid Thomas, whose career with the club would go on to last over 70 years, not only as a player, but also a secretary, director, chairman, and lifelong president. When ECFC turned professional in 1908, St James Park was developed to meet the standards of the Southern League. Despite a few games played elsewhere, this has been the home of ECFC for over 100 years.

> Once there was a large gate here, the Kendall Gate. On a Friday in late February 1981, when we had an FA Cup run, hundreds of supporters slept overnight on the pavement by that gate, so when the shop opened on the Saturday morning to sell tickets for the quarter final match away to Spurs we would not miss out.

The result of this curation sees the combination of material, cultural and personal narratives, and reframes the location temporally by mixing two past events with the present embodied experience of the user. As the trail continues its way around the ground and into the town this temporal engagement with heritage phenomena continues as the narrative weaves its way through more than one hundred years of history. Along this journey a contemporary Turkish supermarket is reframed as the Red Lion Inn, at whose location the story of the clubs formation is recounted to the user. Similar experiences occur at the Co-Op, which as the former site of the local newspaper the Express and Echo serves as an opportunity to recall the various headline moments in the club's history. McGahey's tobacconist on the High Street offers the opportunity to display a picture of the historic Brazil match, revealing that the namesake of the proprietor was in fact the chairman of the club who accompanied the team on their trip across the Atlantic. The Guildhall reminds, or informs, users of the club's various promotion wins, revealing an image of the location in 1977 that shows the victorious manager, Bobby Saxton, greeting the crowd from the roof of the ancient civic building.

The trail guides the user through not only the city itself, but also layers of historic moments and themes. As a piece of curation it allowed the club to not only present their history to users, but also to create their own representation of their heritage that differs from the traditional footballing narrative of promotions, relegations, trophies and historic matches. By attaching narratives to nodes around the ground, and also in the city centre, the Mapp provides a framework for the historical narrative of the club that allows users to make connections between landmarks in their everyday lives and the broader history and heritage of the football club. In this we see an emergent digital heritage that creates additional layers of information in the world around and generates a story that triggers both and instant and longer-term understanding of a particular heritage theme.

In relation to constructivist learning theory this fits with Dewey's two aspects of the quality of experience that can be restated as follows: (1) the visitor interacts with the exhibit and has an experience, and (2) the visitor assimilates the experience so that later experiences are affected (Ansbacher 1998, 36). For all users of the Mapp the engagement with heritage phenomena both at individual nodes, and as a whole, resulted in both these occurrences, particularly in relation to the second aspect where locations previously not associated with the story of the club became part of the narrative, not only of the history of the club, but also as part of an individual and personal heritage whereby these landmarks spjeerved to become part of the users' understanding of the heritage of the club and the city in the everyday. This everyday knowledge is of particular value to the concept of

phenomenalisation, and should not be dismissed as 'trivial or not of use, because, in fact, it reveals the way we understand and interpret our everyday surroundings' (Arvanitis 2009, 172). Furthermore, it adds additional layers of knowledge construction to the presented narrative, this augmenting the record for future users, and in doing so adds to the story for engagement.

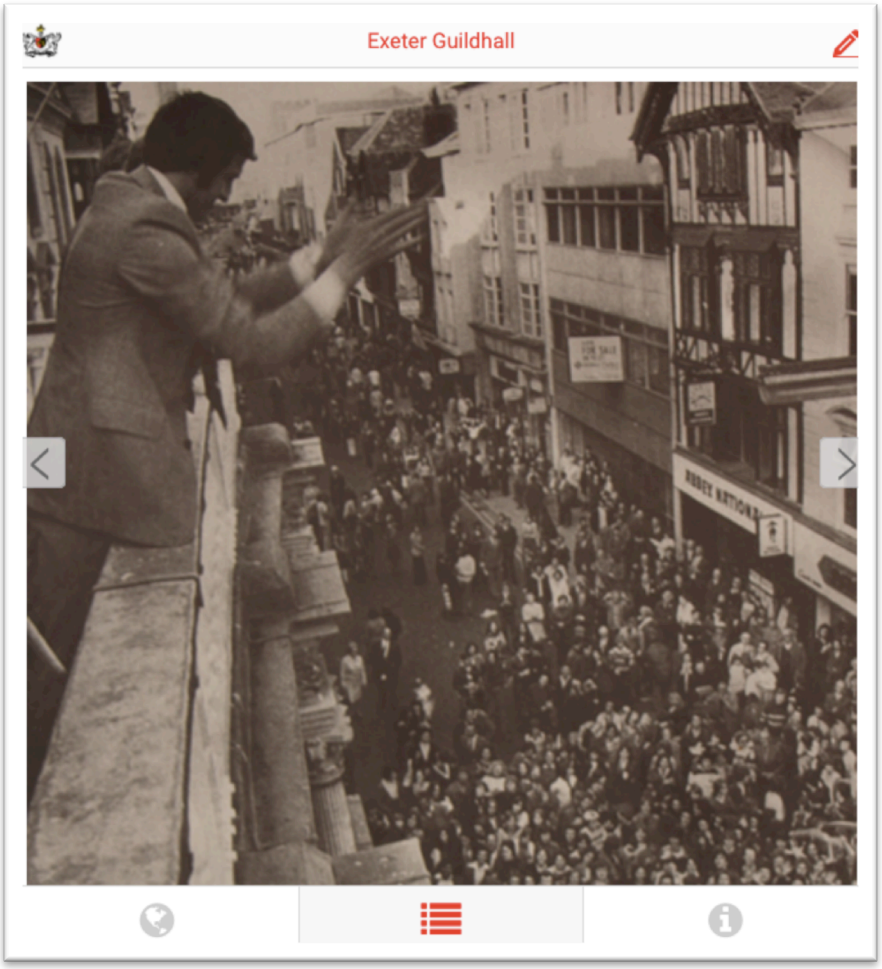


Image 21: Saxton acknowledges the fans in 1977. **(Source: *Placeify*/ECFC).**

Beyond the initial trail around the city of Exeter, *Placeify* was utilised to create two more Mapps designed to promote a number of different forms of engagement. The second ECFC Mapp was produced in collaboration with Paul Farley and Lewis Jones of the ECFC Supporter's Trust, and Jamie

Vittles and Scott Walker from the club's Football in the Community (FITC) organisation (now ECFC Community Trust). The main purpose for the Mapp was for it to be used in conjunction with FITC's Kick-start programme, which was designed to support children at risk of disengaging from education by employing a range of learning exercises outside of the traditional classroom environment. To ensure the safety and control of the children, this particular Mapp was curated to feature locations within the boundaries of the St James Park stadium complex. A priority for the curation of this trail was to engage the children in speaking and listening activities, and so additional affordances which ranged from the implantation of recall, as well as collective discussions, were employed. In addition a minimal amount of role-play was included in order to fulfil the act of embodied engagement with the heritage in question.

Image 22: *Kick-Start Trail Map*. (Source: *Placeify*/SJP).

In total 12 locations were added to the Mapp, and over the course of six separate workshops, the trail was tested with more than two-dozen children, each aged between 12 and 14 years of age, who were introduced to the history and heritage of ECFC by following the trail via an iPad, with one participant chosen as group leader to guide the trail. QR Codes were also placed at each location owing to the potential for limited GPS signal, and whether it was the GPS or the QR Codes that instigated the orientation of the exercise, the wayfinding element of the trail provided a consistent stimulus and momentum for the exercise on each occasion. The trail followed a relatively chronological pattern, detailing key moments in the club's history from its formation to the present day. In doing so the locations were selected to follow a circular configuration around the ground itself, beginning and ending in the boardroom and visiting each of the main stands, including locations such as the heart on the big bank, the dugouts, the press box, and the changing rooms; each of which are familiar with a number of key roles and functions of the club, not just in the present but throughout its history.

Image 23: *In the press box at St James Park*. (Source: *Placeify*/SJP).

In terms of role-play participants were invited to act in a number of roles associated with football on a match-day. One of the most popular locations for this was found to be the press box.

Image 24: ***Alan Banks as shown at the press box location*****. (Source:** ***Placeify*****/SJP).**

At this location the user group was introduced to not only the physical environment of the press box, and its function on a match-day, but also to an important character from Exeter City's history:

> Alan Banks (b.1938) was bought for £5,000 from Cambridge in 1963. He is a member of the first ever team to win promotion in 1964, was player of the year in 1968-69 and was the first ever Grecian to score 100 League goals. He played for Liverpool, Cambridge City, Exeter City, Plymouth Argyle and Poole Town, and in a survey published by the Professional Footballers Association in December 2007 he was listed as the all time favourite player amongst Exeter City Fans.

The text provides an abstract element of history in relation to the location, however once the text had been read by the group, each individual participant was presented with the following affordance:

> You're a journalist sat here in 1969 and you've just seen Alan Banks score his 100th ECFC goal and be presented with the shield. What headline do you write for the morning paper?

The responses to this particular task saw participants eager to add their journalistic slant to the record: '*We Give Thanks to Alan Banks*' and '*City's Greatest Legend Since Bastin'* were two of the offerings, each showing a sense of the historical accomplishment of Banks, as well as indicating recall from a previous node that had introduced the group to one of the clubs most historical figures, Cliff 'the boy' Bastin. Furthermore the location and activity also had the effect of encouraging some of the participants to discuss their own memories, both of St James Park and ECFC as well as

their own roles in football outside of the ground, which was an encouraging outcome of the speaking and listening targets of the trail.

Role-play, as a method of engaging the group, is particularly important in delivering the experience of the trail, as it offers a break from more formal learning methods and allows a different perspective (that of the journalist on this occasion) in terms of just spectating what occurs at St James Park (Giannachi 2014). Additional elements of role-play built into this particular trail included enacting the role of the captain or manager (changing rooms) and potential signing (boardroom). In evidencing the potential of the exercise in both sharing of information and the creation of new knowledge the changing room experience allowed for participant's to embody these roles and project how they would act, both individually and as a group, in this scenario. Imagination or evidence of constructivist learning is displayed here, with participants sharing with one another their own pre-conceived ideas of life in the sacred space of the dressing room, or by sharing stories that they have heard regarding activities and actions in this space.

In terms of the creation of new knowledge the boardroom exercise saw members of the group volunteer to be an agent and prospective signing. These actors would then ask the group questions on why they should sign for the club, and the responses from the rest of the group would always focus upon the heritage of the club, its facilities and key moments, each of which would reveal recall from the exercise delivered by the Mapp. In both these scenarios the digital device acts as the tool in delivering the primary narrative

of the trail, whilst also facilitating the expansion of the activity through interpreting the content to form new personal narratives and group engagement.

Beyond the role-playing elements, one particular affordance was introduced in order to test the metaphorical excavation element of phenomenalisation. In this respect each of the children were asked to look out of the boardroom window and survey the stadium as they saw it before them. Here the group was asked one simple question: tell me what you see? In each of the sessions the answers that came back from the group followed a literal pattern of observation; 'Exeter School' and 'Signs Express' were two of the common examples of the participants recalling there observations of the advertising hoardings that surround the ground; 'A[n] old building… it looks knackered' was another as one of the children responded to the Old Grandstand, once again showing a literal observation in decoding the landscape. However, following the completion of the trail, the group was once again asked the same question. The responses here took on an entirely different tone, with responses containing themes more related to the heritage of the club. For some users they saw great moments, and great players, in recalling the achievements of Banks and Bastin, amongst others. Subsequent answers were entirely more metaphorical, with themes such as 'a place where people belong' and 'the home of a community' replacing the more literal observations of the initial element of the exercise. This is an intrinsic element of the term phenomenalisation, in that the exploration of digital trails has enabled the participants to metaphorically excavate a particular place, and in doing so

they do not only have a greater understanding, and personal interpretation, of the phenomena that has been digitally displayed, but this mixed reality situation has also had an impact on reframing the location, and the participants perception of it.

While different in the method and delivery of curation, this particular trial showed the malleability of the platform in creating a bespoke exercise for a particular group of users. The exercise itself was well received by each of the user groups, and all of the children showed great enthusiasm and a connection with the material, and as a result the activity was commended for its approach in delivering an exciting and inventive way of communicating culture and heritage to young people. As a whole, the trail, which was later used by university interns in introducing them to the heritage of ECFC, served to provide an orientation of the ground that revealed hidden histories, not only presented by the Mapp but also by users who had their own memories and perspectives of St James Park and ECFC.

A third Mapp was also produced with senior members of the football club's community, where a number of workshops were held to draw from the everyday experiences of fans, and to gather individual and collective memories about ECFC's heritage. The Grecians Remember Mapp was utilized in a number of workshops in order to prompt memories and encourage discussion about several themes linked to the football club. The workshops were used first to identify the themes in order to curate the Mapp, while subsequent sessions used the Mapp to prompt memory and discussion.

The themes that emerged related specifically to groups of people, who in turn make up the identity and heritage of the football club. A node was placed at each stand to represent fans of the Big Bank, the Old Grandstand, and the WTS Stand respectively, whilst two additional nodes were placed at the local train station and the club's public hospitality area to represent away-day fans and social fans respectively

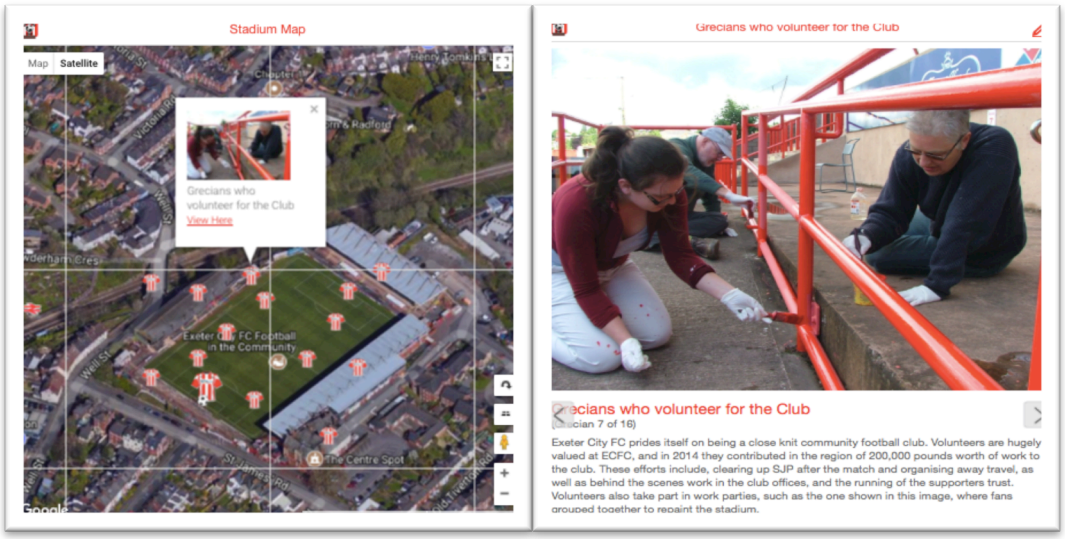


Image 25: '*Grecians who volunteer…*' (Source: *Placeify*/Grecians Remember).

Another theme that came up in discussion was the work of volunteers which is an element that is perhaps not regularly associated with the heritage of a football club, but was deemed a valuable part of the story to be shared. The narrative created to associate the image and location was one of positivity and respect for all those who volunteer for the club, and would make any user of the Mapp acutely aware of the value of these people to ECFC. While volunteers may not always be seen as a central narrative to the heritage of a football club, players always are, and so the inaugural members of the club's

hall of fame were added as nodes to the Mapp, with images of the players themselves supported by text gathered from the sessions.

As a whole, this particular Mapp represents a co-curated heritage of this particular football club, which reveals its identity as seen through the collective memory of a whole range of dedicated and long-term fans. Beyond this collective, the approach for the Mapp also drew from the work of other curatorial platforms, such as *Historypin*, to provide additional functionality for users to add their own comments, and annotate the nodes around the digital view of the stadium. As seen through a number of digital mapping projects this is 'an increasingly popular and rewarding strategy to generate engagement with local history in that they can facilitate the creation of a sense of presence (and also of belonging) within that history among a particular community' (Giannachi 2016, 81).

As Giannachi has shown in her studies about the role of presence in contemporary art and heritage (2011, 2014, 2016) presence is of particular value to both cultural heritage institutions, as well as users of such platforms. For those involved in the establishment of the heritage programme at ECFC, the response gained through this co-curatorial approach enabled us to learn more ourselves about the history of the club, through the presentation of new narratives that unearth the meta-narratives associated with participants' personal experiences. Furthermore, the adding of narratives to the curated nodes of engagement puts the user at the heart of the growing narrative, metaphorically placing their memories in situ in the aid of supporting additional users metaphorical excavation of this location. For users, placing

affordances at nodes of engagement across the football stadium allows them to reflect on their own past experiences, and place these memories alongside the curated narrative, thus becoming part of the historical record. The symbiosis of these two core practices of curation, and co-curation through affordance, therefore strengthens the cultural heritage narrative of any given node, while simultaneously allowing users to feel that they belong to the heritage of a place in that their presence has been curated within it.

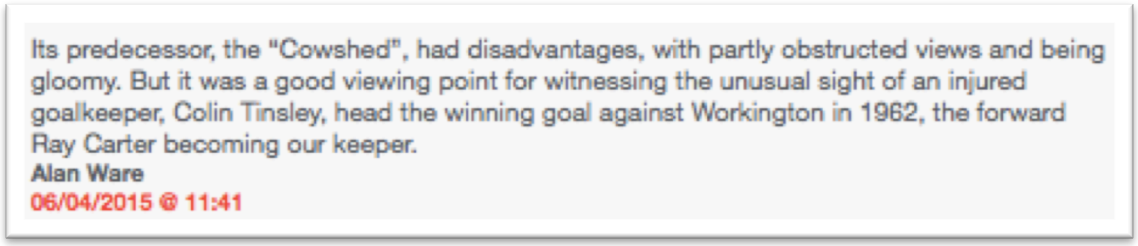

Its predecessor, the "Cowshed", had disadvantages, with partly obstructed views and being gloomy. But it was a good viewing point for witnessing the unusual sight of an injured goalkeeper, Colin Tinsley, head the winning goal against Workington in 1962, the forward Ray Carter becoming our keeper.
Alan Ware
06/04/2015 @ 11:41

Image 26: *Comment added to the Placeify Mapp by Alan Ware.* (Source: *Placeify*/Grecians Remember).

The above comment was taken from the *Placeify* Mapp from the WTS Stand node, and provides an example of additional information being added to the platform, and the sharing of new knowledge from the perspective of personal experience. The comment was provided by Alan Ware, and refers to the 'Cowshed' stand, which stood previously on the site of the modern main stand. The recollection provided by Banks contains both material, cultural, and personal elements, in illustrating his narrative. In doing so Alan has unearthed his own memories and recapitulated it for future users of the Mapp. In turn, those users of the Mapp who encounter this node will in a sense be digitally excavating this memory and in doing so will be informed, in some small way, of the architectural changes to this particular place over time, as

well as a personal memory from a member of the local community. Furthermore, users who have memory of this particular stand, which stood on the famed primrose bank, will be provided with an additional affordance that serves to focus the user in recalling, and perhaps sharing their own personal memories and narratives of this location. In essence, these contributions evoke the memories of the individual, and in turn these become part of the constructed memory of the user themselves, by conjuring images of particular players and places from the past. Therefore, in augmenting the text in such a way these users contribute to the collective co-curation of the Mapp, and by revealing their personal memories they are adding to an evolving script, which augments the narrative for future users.

Subsequent testing of the platform occurred with more than twenty individuals, made up of both fans of the club and University of Exeter students who were participating in the Grecian Archive internship scheme, which has at the time of writing run for four years. Each year these students, most of whom have little knowledge of the football club, let alone its heritage, used these trails as a means to orientate themselves with the knowledge that they need to begin their work with the archive. While assessing the use of the trails one element became blindingly apparent. For those people familiar with the ground, the trail highlighted new things about the history and heritage of the club, but it also conjured memories. While conventional approaches to the heritage of a place are concerned with what happened in terms of a collective memory, for example the result of a match, the redevelopment of a stand, the

outcome of a season etc. the approach to heritage from these users' perspective became more of a personal one.

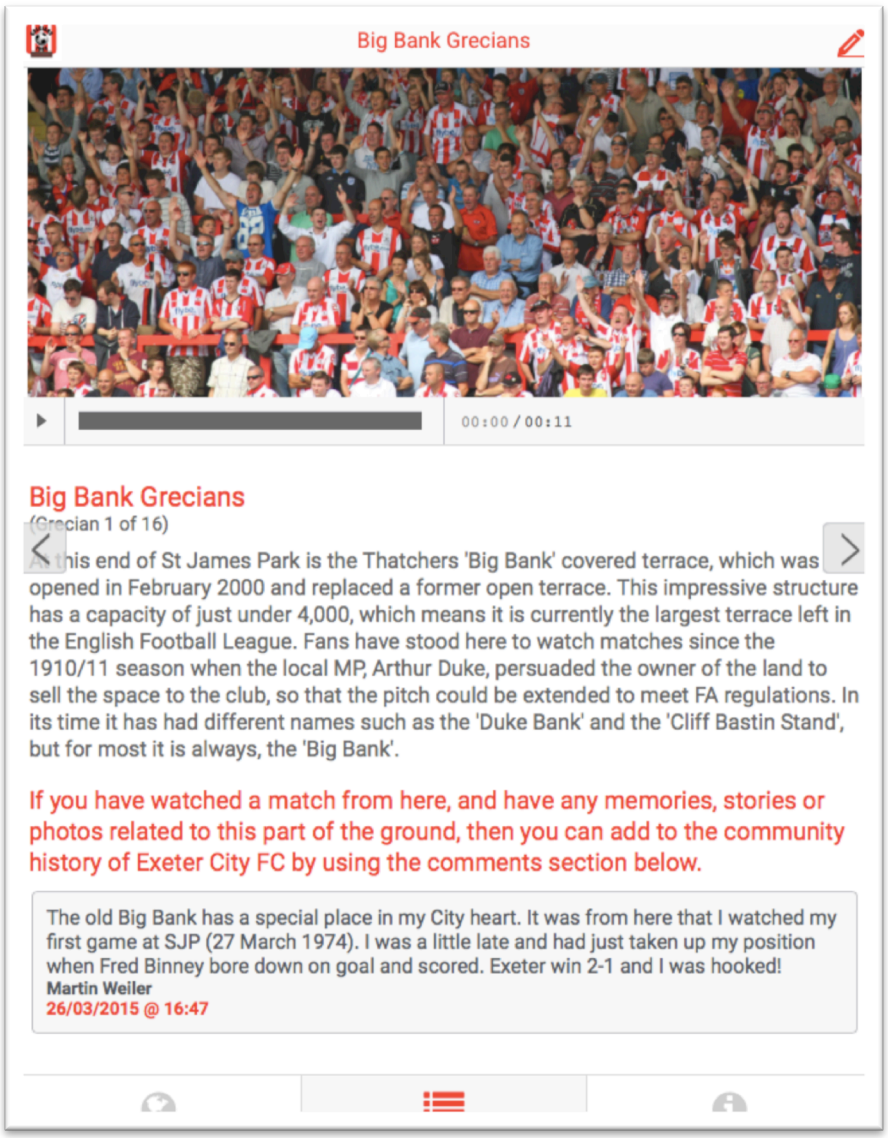


Image 27: '*The old Big Bank has a special place in my heart…*' (Source: *Placeify*/Grecians Remember).

An entry made to the 'Big Bank Grecians' node by Martin Weiler is one such example of this phenomenon. While the trail text introduces users to a brief history of the Bank, including facts about its capacity and its various names over the years, Weiler's text is an entirely personal one, detailing his first

memory, not only of the stand, but also of his experience as a fan of the football club. Subsequent users of the trail during my ethnomethodological study often commented verbally on this particular feature, either recalling their own experience of St James Park, or indeed of other stadiums and football clubs. This example provides evidence of the phenomenon seen elsewhere in this study in which users not only consume the information provided at each node, but also engage with the content. The exercise is not just to digest information, but to transform it into knowledge by considering the question of what the phenomena on display means. In this example the phenomena is the largest standing terrace in English football, but for others it is a place of memories, both past and emergent.

Through exploring the trail, and others such as this, users are introduced not only to a place, or an object, or a structural feature, but also the layers of memories that are associated with it. With all Mapps the purpose is to place artefacts in context, or indeed provide additional context to an existing feature, creating a digital palimpsest through which users can metaphorically excavate narratives of the past. Through embodied interaction with these phenomena are given a greater sense of personal interpretation, which is then shared with future users and audiences. For those students who used the trail to orientate themselves with their physical surroundings, as well as the time depth associated with this particular place, each additional contribution to the Mapp serves to enrich and broaden this experience of interpreting the phenomena

before them. This prosumption[5] of content is a vital part of expanding the understanding of cultural heritage in the digital age (Folls 2015), and in doing so provides a holistic approach to engagement and production that holds the potential promise of creating a shared understanding of the myriad of narrative held in any given heritage phenomena. In this way heritage has moved beyond the didactic models of past engagement, where information was transmitted from institutions to the individual, towards a model of conversation that may well re-address the habit of looking for singular narratives and linear modes of interpretation for heritage phenomena.

5.4.1. Summary.

Looking at the three examples of Mapps presented in this section, it has been shown how a curatorial platform, in this instance *Placeify*, may be used to engage in a range of activities. Of particular significance is the way in which the platform was adopted by the Supporter's Trust in order to explore their collections and create a narrative that weaved its way around the ground and through the city to tell the history of the club in relation to the community. Like the more established cultural heritage organisations that took part in the development phase of *Placeify,* the Mapp was used to connect phenomena to the landscape so that unseen heritage narratives could be made visible via the platform.

[5] The term prosumption was first coined by Alvin Toffler (1984), when building upon work by Marshall Mcluhan and Barrington Nevitt (1972) who had theorized that the role of the consumer would be transformed to that of a producer due to advancements in electronic technology.

Individually each of these Mapps has involved a range of stakeholders in developing the content, creating active participants in the shared creation and engagement with heritage phenomena. The result is a community co-curated platform through which both heritage materials and personal narratives are placed in geo-located context for multiple uses. In the activities that resulted through the act of creating these Mapps, additional information, subsequently added to some of the nodes, further strengthens the value of the content both as a tool for engagement, but also as a research resource.

Looking at each of these Mapps as a whole Placeify is a strong example for this thesis of how phenomenalisation can work holistically, not just in creating digital trails that provide information and context for phenomena, but also in producing embodied experiences that transform the consumption of information into the production of new knowledge. Furthermore the production of each of the trails provides framework of the Mapp provides a structure for the collection of narratives, information, and memories, from an associated community. In doing so the platform generates a digital landscape that serves to provide the grounding for ECFC and its aims to be recognised as not only a football club, but also as a cultural heritage organisation.

5.5. **Incorporating Phenomenalisation into Broader Strategies**.

As an additional component to the above case study, it is valuable here to demonstrate the wider value of the use of Mapps in the interpretation and co-curation of cultural heritage. While the previous section demonstrates how users can utilise the Mapp to add their own contributions to the heritage record, it does not demonstrate how such platforms can be used within a

broader digital strategy to develop heritage practices and to create and improve narratives.

Alongside the Placeify project, I have been involved in several initiatives that have sought to improve cultural heritage practices at St James Park, Exeter. While Placeify supported the initial engagement with the club, the scheme has evolved beyond that to involve Arts and Humanities Research Council (AHRC), Higher Education Innovation Funding (HEIF), and Heritage Lottery Funded projects. These projects have sought to develop and manage the resources at ECFC to a professional standard, and to meet the accreditation standards set out by the Museum's Association. As noted before in this chapter, the work began with a few scant resources, but today the ECFC Museum has several displays in each area of the ground, as well as an online presence in the form of the Grecian Archive, and a Museum Display Room, which is home to some of the most valued and valuable items collected over the past few years.

All throughout this process, the principles of phenomenalisation have been employed to support the research and sharing of these items to the wider public. For each narrative or display, those collaborating with the projects have worked to understand the items in the context of their present and historic lifeworld's. The key paradigms of material, cultural and personal interpretations have been attributed to each item displayed, whether that be physical or digital, and decisions on what to display have been based on the thoughts and opinions of those who have embodied the experience of ECFC

over decades past in living memory. For the principle researchers, the Placeify Mapps helped us to connect with staff, fans, volunteers and former players in initiating a digital repository of the clubs history, and subsequently transform the most pertinent elements into tangible displays, while broadening the interpretations of the clubs heritage that have emerged through phenomenalisation.

In return, users of this platform, which include everyone from the chairman to the most recent fan, have been able to broaden their understanding of the clubs history, as well as its heritage. The work, which built upon the initial Mapp, has helped to strengthen the identity of the club, and give it confidence that its past was something to be proud of and part of the journey to where they are now. However it must be noted that this process was not fully achieved through the use of smartphones, but through incorporating this tool into a broader strategy of heritage engagement. These practices remind us that the smartphone, which is central to the production of phenomenalisation, is just one of the tools at the disposal of museums and other repositories of cultural heritage. All cultural heritage professionals know that it takes a huge amount of time and resources to digitise a museum collection. Central to this are the people involved in the process, not least the photographers, archivists, interns, volunteers, curators, web developers, videographer, designer, editor, and management, yet what should be valued more than their expertise is utilising their experiences, knowledge, and interpretations related to the phenomena in question, and supporting them in being aware of and utilising the tools at their disposal.

As the club prepares for the official launch of the ECFC Museum in 2019, I have received a great deal of correspondence and feedback regarding the progress of the project, and further interpretations to attribute to the ever-growing collections held in the new archive facilities. Andy Bratt, a Trustee of the ECFC Supporter's Trust, and leader of the St James Park tour team sent one such email, which highlights the impact of the heritage work conducted at ECFC, as well as the nature of the expanding narratives that have, through user engagement, broadened beyond just football:

> The whole experience has been totally transformed. We now have a script that accurately describes the Club's early history (we didn't even have the date of its formation correct!) and evolution. Walking around the stadium still gives people a chance to "peer" into hallowed spaces, but it now also transports them around well-chosen and well-displayed memorabilia which tell a story of local history which is, yes focussed on football, but goes so much further in touching on local social and political history too, and is above all about people - footballers, fans and club servants (Bratt 2018).

5.6. Conclusion.

The digital technology and participatory media being utilised by cultural heritage institutions, demonstrate a change from a one to many transmission to a many to many interaction, in which museums use their own voice and authority to encourage participatory communication and content creation with visitors. Through these activities users, in their various roles, engage in

disseminating their own representations of phenomena, at new nodes of cultural heritage engagement, through text, audio, video or photography. Not only does this result in scenarios where people create and share a variety of heritage phenomena for interactive and immersive engagements, but it also contributes to a form of collective heritage, whereby the memories, interpretation and knowledge of individuals, and groups, can come together to form a community-generated version of shared cultural heritage.

This chapter has investigated three platforms, each of which can be described as curatorial. The core component of a curatorial Mapp is that it allows users collecting, create, and share, digital representations of cultural heritage phenomena. Each of the case studies presented in this chapter have demonstrated how Mapps can be used in community co-curation, which draws from the experiences and knowledge of its users. *Historypin*, *Moor Stories* and *Placeify* each provide the affordance of connecting users to particular landscapes, narratives and phenomena, and in doing so foster the generation of digital stories that serve to provide not only new information, but also the generation of new knowledge. This chapter has demonstrated the ways in which users produce a range of factual and creative narratives in order to augment the Mapps associated locations and phenomena for future users, and while initiating dialogues can be a far less tidy undertaking than simply providing the facts about a particular piece of the past, we are willing to give up having the final word in exchange for the benefits of being able to hear all kinds of interesting voices other than our own (Potter & Chabot 1997, 53). In doing so we see how the community can add valued contributions to

the heritage record, revealing the medium of the smartphone as the latest tool in the creating heritage narratives.

In the case of *Moor Stories* users were asked, first in workshops and then via the platform, to add their stories to the Mapp of Dartmoor. These stories reveal an additional layer to people's perspectives of the Moor, as well as knowledge they deem valuable enough to share with a wider audience. In the example provided by *Placeify* this chapter has shown how an organisation can use a Mapp collaboratively to connect users and the heritage together via a digital representation of the landscape. Moreover, when used in hybrid scenarios with the landscape, this digital topography stimulates the metaphorical excavation of the past for its users, both in making sense of the world around them, but also in relation to their own experience. The result is a holistic representation of phenomenalisation whereby Mapps are created to share digital phenomena in contextual locations, in order to foster embodied engagement, as well as the sharing of interpretations and information to foster new knowledge.

Conclusion.

Digital technology is clearly having an impact on the way in which museums, and other cultural heritage institutions, communicate not only within the physical space of their premises but also outside in the real and virtual worlds. This is evidently a sign of evolution in the world of cultural heritage, which opens up exciting prospects for the transmission and interpretation of cultural heritage phenomena and associated narratives. However, in concluding this thesis, it is important to note a word of caution before getting caught on a wave that we hope will take us forwards. In *Recoding the Museum*, Ross Parry highlighted that, while it may be tempting to do so, there is a risk of seeing museums and digital media within a context of 'progressive, incremental improvement – with technology as the main driver' (2007, 4). In this assessment of the influence of digital media, the technology is merely the tool to hand, and it is the content and the methodologies through which we design and present it that drives how we may engage with and communicate our perceptions and interpretations of the past.

Throughout this thesis the primary tool that has underlined the discussion and analysis has been the mobile smartphone, and its use in contextual scenarios outside of the walls of the traditional museum space. In doing so the attempt has not been made to view smartphones as the sole driver in expanding the digital territory of the museum, but rather as a valuable tool through which museums, and other cultural heritage institutions, can engage their audiences in engaging and participatory experiences that align with what this thesis concurs must be the primary mission of the museum in a digitally driven age.

The result of this process is what this thesis has termed the phenomenalisation of heritage, which can be recognised formally as the creation of meaning through digitally-mediated encounters with contextualised heritage phenomena, and the co-curation of new narratives that may contribute to the understanding of both our personal and shared cultural heritage. The value of this proposed paradigm is that it seeks to develop cultural heritage engagement to alter people's perceptions of heritage phenomena and historic/everyday location through embodied interaction, and in doing so create shared personal narratives that broaden our understanding of a shared cultural heritage.

In unpacking this term, I began this thesis with an examination of the museum and the nature of heritage phenomena, which demonstrated the evolution of the museum in order to provide an analysis of how the changing conditions of the age, and the technological tools at our disposal, have shaped our understanding of the role of the museum and our perception of cultural heritage. In doing so, it has been shown that the museum has evolved from a place for the transmission of information, towards somewhere that creates opportunities for visitors to become part of the interpretation and curatorial process. At the heart of this process is the interpretation of heritage phenomena, which manifest in the form of digital representations of artefacts, scenes and narratives, geo-located and arranged through nodes of engagement, placed at the contextual point of their origin, existence, or historical use. Throughout, I have argued that there are multiple truths to any given phenomena depending on a person's own constructs of knowledge and

personal points of view. Here the traditional paradigms of material and cultural interpretation can serve to support the personal interpretation of phenomena, through affordances that stimulate responses from the user.

This digital process also raised questions about the definition of a museum. As stated, a museum is ‘a non-profit, permanent institution in the service of society and its development, open to the public, which acquires, conserves, researches, communicates and exhibits the tangible and intangible heritage of humanity and its environment for the purposes of education, study and enjoyment’ (ICOM Statutes 2007, 2). Traditionally the museum has been seen as a physical space and a habitation that houses collections of heritage phenomena for the consumption of the public. What mobile devices have done is expand this territory into the physical world at large, thus creating a new type of digital museum that is restricted not by physical dimensions, but by the power of the device at hand. It can be argued as a result of this thesis that each of the Mapps explored can be recognised as museums in themselves, or at least a part of a large sprawling network of museum content, which can be defined as the realisation of the museum without walls.

The further discussion, presented on the role of smartphones in wider society, served to underline the potential of these devices in expanding the mission of cultural heritage institutions outside the walls of the traditional museum space. While the smartphone has evidentially become a significant element in the lives of almost everyone in the UK, David T. Schaller points out the irony of mobile phones in relation to heritage engagement, by stating that the

distractions of modern day life are permanently at hand in the form of phones, yet it is through these devices that we can 'tune into the symphony so we can hear those echoes and see the world of the people who once walked on the very ground we're standing on' (2015, 5). The data provided on smartphone use clearly expresses their pervasiveness as an everyday tool, but more importantly the deeper analysis of these devices served to unpack and confirm their potential in unlocking the unseen layers of heritage that surrounds us all in our day-to-day lives. It is here that the smartphone becomes a tool to hand for the digital and metaphorical excavation of cultural heritage and the production of new narratives.

The case studies confirmed that through smartphone devices, cultural meanings are no longer represented solely by cultural objects, but are produced at multiple sites and interfaces, between hardware, software and humans (Rose 2016, 347). In seeking to view this process through a philosophical lens, this thesis turned to the principles of phenomenology as an explanation as to how users make sense of heritage phenomena in the context of smartphone-driven encounters. Recognising a gap in the literature for understanding of user behavior in these contexts, phenomenology, both as a philosophy and as a paradigm of archaeological study, provides a perfect philosophy through which to understand how users access and make sense of phenomena through smartphone devices.

Phenomenology is by no means a popular term in the common vernacular, yet it is something people do each time they encounter digital heritage via

their smartphone, whether they are aware of it or not. Whether Mapps are traditional, interactive, or curatorial, they each engage users in embodied experiences that focus their intentionality towards the interpretation of cultural heritage. In doing so users are encouraged to look not only at the phenomena in question, but also to fit them into the context of the world that surrounds them. In these hybrid environments the phenomenon in question is given context, either through a comparison to the world that exists now, or through encouraging the user to think about the world as it previously existed. As with post-processual archeologists, this process creates multiple scenarios for us to interpret the meaning of any given phenomena, or the broader narrative that it represents. All good historical enquiries are based upon an object, an event, or a scenario, and it is the digitisation of these sources that allow users of smartphones to uncover, or metaphorically excavate, the past from their own perspective.

In further adding to the existing literature on digital heritage, this thesis employed a novel methodology, which utilised auto-ethnographic and ethnomethodological approaches to explore and categorised the digital landscape produced by mobile devices across the UK. Through the testing of 119 apps, and the creation of a taxonomy of mobile experiences produced between 2010 and 2015, this thesis identified and demonstrated the three key typological behaviors of Mapps from standard, to interactive, and through to curatorial. The key characteristic of each of these categories is the digital placement of phenomena in contexts that return them to their place of origin, use, or existence, and it is here that I have shown that people respond to

heritage phenomena not only from their constructed perceptions of the past, but also through channeling their own lived experience into their interpretive strategy.

Therefore, It has also been demonstrated that smartphones, in this context, should not be seen as passive media. Through the use of these digital devices the process of making meaning is an active one. The Mapps produced for the exploration of heritage phenomena are not containers fully loaded with predetermined messages; instead they require us to complete the clues provided, so that we make meanings for ourselves. This process is evident through the investigation of both interactive and curatorial Mapps. In exploring locations such as London, St Ives and Exeter, users have been able to utilise their smartphones to look at past worlds and human behaviour's through a range of phenomena that includes digital objects, images, audio, and film. In doing so they are actively viewing representations of the past that stimulate the meaning making process in drawing from their own contextual understanding of the world, both past and present, to make their own personal judgments on their view of the phenomena, their meaning, and their relationships to the environment in which they are placed.

Through the active research employed in the production of this thesis, each research and development workshop and ethnomethodological case study served to highlight the effective power of interactive and curatorial driven affordances in producing meaningful and potentially valuable engagements with digital cultural heritage. Affordances employed in interactive Mapps are

both technical and textual, encouraging users to view and respond to heritage phenomena and the environment that they are digitally placed in. The case study chapters demonstrated that these mixed reality situations impact the way that people understand the intended role of heritage phenomena, both in terms of their original function, but also in relation to their relevant message in the present. This mixing of past and present lifeworld's comes to the fore through interactive technologies such as augmented reality (AR), which serve to merge the past and the present through technological affordances. Throughout the study of interactive Mapps, it was shown how the previously unseen became seen, and how these experiences reframed the perspective of the user of the world around them. For example, modern London merged with Roman London, where gladiators battled to the death in a location that is now associated with more peaceful activities. This reframing of locations through digital mediation is an inherent part of phenomenalisation, as reshaping how people see the world around them helps them to appreciate aspects of how the everyday world in which they live has emerged. Furthermore, through digitisation and locative technologies, phenomena are repatriated to their point of origin, use, or discovery, and in doing so provided participants with a reminder that often-inanimate objects are not items for display in a museum, but were once used to play an active role in everyday life.

It is evident that through researching this thesis I have found that people have a real connection to heritage when engaged with in the everyday world around them, and are prepared, when stimulated through affordance driven

activities, to become active participants in the co-curation of cultural heritage. While for some the presentation of heritage phenomena has pitted the real against the virtual, this thesis has shown that digital objects are more than simulacra or signs for consumption, and certainly not a threat to authenticity. Storytelling, which in its simplest form 'is one of the oldest art forms of human beings; initiated in the oral tradition, its form has evolved with changes in society and available media with which to work' (Refsland et al 2007, 412). Where once the authentic artefact was central to the creation of the narrative, its digital counterpart may now play its role in evoking those stories through the implementation of affordances through mobile devices.

Through utilising smartphones in creating curatorial Mapps, we encourage visitors to 'add their input to that of experts' and 'share critiques, opinions, and reactions to the contents of an exhibition' (Stogner 2009, 390). In this setting the community becomes empowered in the process of heritage creation and presentation as 'active, free participants' in media processes 'rather than static, passive and subservient to the images and values communicated in a one-way flow from media sources' (Brown 1998, 47). Juliette Fritsch says that if constructivist museum is take to its logical conclusion, then surely there is no knowledge except for what the visitor constructs in his or her head (2008, 108), but by considering this approach from the perspective of one individual, this critique fails to take into account what can be achieved by collating constructivist knowledge from a wider range of people.

As shown in the investigative chapters, each individual may respond to their experience in a different way, but this is more reflective of how the world is seen than if collections are presented with a singular didactic narrative. Every evocative object on exhibit is a mnemonic device, whether that by physical or digital. Every visitor interaction is story making as visitors fit portions of collections into personal frames of reference; most often in ways that were neither intended nor anticipated (Tallon & Walker 2008, 109). As Douglas Worts said, the visitor side of the creative process 'is idiosyncratic – sometimes tentative, sometimes dogmatic, at times it is intensely moving, other times shocking, while at other times insightful' (1995, 165), and through providing opportunities for people to explore, interact with, and curate heritage phenomena we have a chance to broaden the historic record and consider the past from a multitude of different view points.

One of the questions regarding digital heritage applications has been whether they 'merely improve the efficiency of current heritage institutions, or will they help to build an evolving, more inclusive collective memory' (Niccolucci 2007, 101). As it has been shown, is the belief, and findings, of this thesis that these platforms actively stimulate users in making connections between heritage phenomena and the world outside the traditional walls of the museum. These connections are more often than not stimulated by the constructivist approach to learning whereby the user draws upon their own thoughts, feelings and memories to interpret heritage phenomena. While in the past this approach may have be regarded as a dilution of the heritage record, this bottom-up

approach to heritage narratives recognises that ‘every museum visitor is a storyteller with authority.

The case studies presented in chapter five presented a range of examples of how user creativity can emerge through affordance, and through the narratives presented on *Moor Stories* a number of factors related to phenomenalisation can be identified. One of these factors is represented by the incorporation of heritage phenomena in the stories produced with local schools. In each of the stories some of the most common items found in a museum, such as a pottery shard and a flint, are incorporated into these narratives from a range of perspectives. Furthermore, the experiences of those who produced the stories, gained from visitors to Dartmoor and accompanying materials, are woven into the narratives to produce personal interpretations based upon the perception of the phenomena and the lived experience of the author. Other stories, produced directly on Dartmoor, incorporated aspects such as the weather, the landscape, and personal memories, which demonstrate further the creativity of heritage narratives through the lived experience. Whether factual or fictional, all of these stories are a great example of how creativity can emerge though contextual encounters with heritage phenomena, and curatorial affordances.

With the opening up of museum interpretation by more democratic practices, museum interpretation will continue to change quite significantly in the years ahead. More specifically, museums will be able to move further away from having a dominant narrative to multiple narratives, which can

dialogue with one another and with museum audiences both meaningfully and respectfully (Obermeyer 2017, 12). By provoking conversations about local heritage, it is clear that everyone has a stake; everyone can take a role authoring the history of where they live (Schifferes 2015, 12). As shown in the investigation into curatorial Mapps in chapter five, users are already participating in adding to the existing narratives of places such as Bath, Dartmoor, and Exeter in adding to the heritage record, either through the digital placement of heritage phenomena, or by contributing their own memories or interpretations to the Mapp. Furthermore, through the broader discussion regarding the use of Placeify at ECFC as part of a wider cultural heritage strategy, this thesis has show how the paradigm of phenomenalisation can be used to support the research of narratives, and the development of a collaborative approach to the curation of cultural heritage institutions. By using Mapps to initiate dialogues with stakeholders, this institution was able to draw from the experiences of its audience in order to enrich the understanding of a wide range of themes related to a range of heritage phenomena, which in turn facilitates a deeper understanding of its culture, heritage, history and identity, whilst also broadening the network of narratives to produce new lines of enquiry.

Having summarised the major themes of this thesis, I now turn my attention to the principles of the production of phenomenalisation, so that it may be succinctly understood and employed by others in the field of cultural heritage. The process begins with the digitisation of phenomena and these items being placed in locations related to their point of origin, use, or discovery. The

placement of phenomena at these nodes of engagements should be designed so that the context of the phenomena, in relation to its purpose of creation or use is conveyed to the user. However, the purpose of Mapps is not to only transmit new knowledge, in the from form of information or facts, to the user, but to provide clues to the participant in uncovering their own understanding of the item, and to affect their perception of the historic lifeworld and the everyday world that surrounds them. In doing so the process may stimulate the senses of the user, and encourage them to decipher deeper meaning to the overall narrative of the designed experience. If done well the process transcends the traditional user experience, and has the potential to unlock hidden narratives that may be attributed to any given phenomena or location. In order to facilitate this, Mapps will need to employ curatorial affordances and publishing mechanisms, which encourage users to use their smartphone to add their own phenomena to the Mapp in digital form, or to engage with the producer of the Mapp within a wider scheme of participatory-driven cultural heritage practice.

Evidentially, this co-curatorial approach provides opportunities for cultural heritage institutions to expand the narratives traditionally provided by the curator. This may lead to questions about the role of the curator in the delivery of narratives that illustrate our heritage. Curators are specialists in delivering information designed to foster the production of knowledge, but rather than presenting information as a singular narrative, the adoption of Mobile Mapps presents the opportunity to create narratives as stimulus as opposed to absolute truth. By implementing the material and cultural aspects of

phenomena in narratives, curators may also align these with affordances in order to encourage users to present their own personal interpretations, and in doing so create a participatory approach that leads to the emergence of multiple interpretations, new information, and personal narratives. In this sense, the role of the curator, or indeed the institution itself, is no less valuable, as it requires a certain level of expertise in story telling and investigation to help users to join in the participatory schema.

Phenomenalisation provides such a framework in which these practices may be delivered. However, while the case studies provided in this work validate this approach to co-curatorial heritage, it is also important to urge caution against the build it and they will come approach. Just because a museum or cultural heritage institution creates a Mapp does not mean that the uptake will be worth the time, effort, and resources needed for its production. The recommendation offered by this conclusion is that creators and publishers of Mapps utilise these platforms as part of their participatory practice, which uses activities such as workshops and heritage events to stimulate the early critical mass of content needed for future users to engage with and potentially respond to. In this sense the museum, and the curator, become facilitators of the programme, rather than rely on the Mapp to do all the work itself. While digital devices are now an essential component of cultural heritage practice, promotion and direct engagement are also key roles of any institution involved in the presentation and interpretation of heritage phenomena.

The ability to create such a holistic approach to digital programmes will of course be affected by numerous issues, such as time, resources and the scale of the institution. The development of approaches will also be influenced by the nature of the organisation, as shown through the case studies in chapter five relating to ECFC and Placeify, and RAMM's Moor Stories. The former was produced as part of a grass roots approach to heritage engagement, using the platform to build narratives and collect materials in the formation of an archive and museum in a place where there was previously no coordinated approach to heritage. This, in many ways, is a direct juxtaposition to the situation at RAMM, which is a large museum geared towards cultural heritage as its core purpose. For both institutions the validity of the material that way co-curated by the respective Mapps was equally sound, however for the football club it perhaps represented a more vital component in the core mission. Never the less, the stimulation of such narratives, and their subsequent curation raises a final key consideration in what to do with such material. While this thesis does not aim to present firm conclusion on what to do with co-curated data, I feel that it is important to pose this consideration in the conclusion as it is presented here, as cultural heritage professionals must ask themselves in the planning stage what their aims are for user generated content, and consider how best to utilise and archive such materials as part of any participatory programme.

In drawing this conclusion to its end, I shall contribute here some considerations of the limitations of the thesis, as well as some views for future research. While this thesis has explored Mapps all across the UK, it has been

confined by the experiences that exist. For future research it would be of benefit, and of interest, to employ this methodology to include interactive and curatorial affordances in new scenarios. For example, in building on the phenomena driven narratives of the Second World War, a Mapp exploring the D-Day landings, and subsequent events in securing the beachhead, would provide the opportunity for veterans to contribute their experiences of the event, or for users to consider how they would have responded to the events in question. I use this example as it hits home how precious few of us can never truly know how we would behave or react in such a scenario, but the plurality of responses would surely serve to further demonstrate the different number of ways in which a single event is capable of producing multiple narratives in interpreting the past.

Finally, this thesis has been formulated to articulate the merging of past and present lifeworld's for the interpretation of phenomena, and the sharing of cultural heritage narratives through existing mobile technologies. Moving forwards it would be of value to demonstrate how the principles of phenomenalisation, as a juxtaposition of technological design and philosophy, can be utilised in the development and application of other technologies. In terms of interactivity, the work presented here has drawn from affordances incorporated into smartphones to produce mixed reality and augmented reality experiences. As technology continues to develop at pace, both in terms of capability, accessibility, and affordability, further work that utilises and modifies the principles of phenomenalisation would be applicable to the research and development of virtual reality in the cultural heritage sector. As

responses to virtual reality driven experiences would, in likelihood, differ from those explored along the mixed reality spectrum in this work, such research would not only serve to underpin this existing thesis, but also provide the opportunity to further refine and develop the theory and methodology of phenomenalisation as a paradigm of digital interaction with heritage.

Appendices.

Appendix 1. List of Mapps.

Abbeydale: Audio Trails Limited.

AHA: Millipedia.

Ancient Colchester: PEEL Interactive.

Archway: Audio Trails Limited.

Ashton Trail: Mark Avery.

Bingley: Canal & River Trust.

Blaenavon: Stars and Heroes.

BluePlaqueGuideFree: Martin Smith.

Brantwood: WT Infotech.

Bristol Myths: Calvium Ltd.

Brixfest: Harry Down.

Caistor AR: Jam Creative Studios.

Calleva: Gill Hunt.

Cardiff Castle: Acoustiguide Ltd.

Carnaby: Shaftesbury Carnaby PLC.

Castle AR: Jam Creative Studios.

Chatham Trail: Surface Impression.

Chertsey Museum: Surface Impression.

Chester Revealing the Rows: Imagemakers Design & Consulting.

City Trail: City of London Corporation.

Cultrex: Culture Explorer.

Culture Beacon: National Museum of Wales.

Curious Edinburgh: The University of Edinburgh.

Curzon: Calvium Ltd.

Derby Remembers: Derby Quad Limited.

Derbyshire: Audio Trails Ltd.

Diamond Street: Calvium Ltd.

Dickens: Homemade Jam Ltd.

Dickens Walk: Acoutstiguide Ltd.

Discover Derbyshire: Audio Trails Ltd.

Discovery Trails: Failte Ireland.

Doncaster 1914-1918: Surface Impression.

Edinburgh 1544: Alan Miller.

Edinburgh Walking Heritage City: Imagemakers Design & Consulting.

Evesham Historic Trail: Areca Design.

Exeter Time Trail (RAMM): University of Exeter & 1010 Media.

Exmoor: Audio Trails Ltd.

Explorer: National Museums Scotland.

Eyemouth Museum Without Walls App: University of St Andrews.

Follow Northampton: University of Northampton.

Forest of Dean: Audio Trails Ltd.

Fortunes (M-Shed): Clavium Ltd.

Greyabbey: My Tour Talk.

GMP Museum: Greater Manchester Police.

Hayle Churks: Calvium Ltd.

HeritageTrail: Emerald.

Heritage Trail: Biznet Ltd.

Heritage Trails Cumbria: Surface Impression.

Hermes: Calvium Ltd.

Heysham Head: North by Northwest Limited.

HiddenLondon: Martin Smith.

Hidden Newcastle: Jeremiah Alexander.

Hidden Stories: Cuttlefish Multimedia Ltd.

Ingleborough: Audio Trails Ltd.

In My Footsteps: Manifesta & Millipedia.

Ironbridge: Ironbridge Gorge Museum.

Leeds Heritage Trail: Solus UK Ltd.

Lofthouse: Audio Trails Ltd.

Londinium Street Museum: Thumbspark Limited.

London Remembers: Appfly Ltd.

London Streets: VoeTek.

Masters of the Moor (RAMM): 1010 Media.

Mediaeval St Andrews: University of St Andrews.

Melton Trails: NVG.

Mitchels Memories: Access Heritage.

MoLL AR: Oakley Mobile Ltd.

Moor Stories (RAMM): University of Exeter & 1010 Media.

Museum of London StreetMuseum: Thumbspark Limited.

Museum Trails: Wild Knowledge.

MyMemories: National Museums Liverpool.

My Tours: Historic England.

Newcastle: Audio Trails Ltd.

OpeningDoors: Calvium Ltd.

OxTrails: Apps4 Ltd.

Parkhive: Calvium Ltd.

Placeify: University of Exeter & 1010 Media.

Place Tales: Natural Resources Wales.

Portsmouth: Surface Impression.

Riot 1831 (Nottingham Castle): Too Many Legs.

Soho Stories: The National Trust.

Sounds of the Cultural Quarter: Cuttlefish Multimedia.

Stonehenge: English Heritage.

Stories of Lynn: Flo-Culture.

Story Drop: Surface Impression.

Story Map: Storymap Ltd.

Story Walks: Anna Pinkas.

Tagging Communities: Jonathan Baker.

Thames EP: Something Labs Ltd.

ThamesTrail: Vika Books Ltd.

The Deepdene Trail: Mole Valley District Council.

The Ridgeway Walk: Calvium Ltd.

The Tower: WalkAppBout.

Threshfield: Audio Trails Limited.

Time Capsule: Above Mobile Ltd.

Time Explorers: Historic Royal Palaces.

Time Machine: Manchester Metropolitan University.

TimeSpan2016: Timespan.

Tolpuddle Martyrs: Arts Heritage.

Tower Bridge: Tower Bridge Exhibition.

Traces Olion: National Museum of Wales.

Trails Cymru: Sequence.

Treasure: Global Trails Ltd.

Tributaries: Halsey Solutions.

Tring: Audio Trails Ltd.

Turner (RAMM): 1010 Media.

Ulster Scotts: My Tour Talk.

Umbria Digital Edition: Sesinet Snc.

Venture North Heritage App: NB Communication.

Visions of Ancient Leicester: Mixed Reality Ltd & Opulence Design.

Visit Chelmsford: Something Labs Ltd.

Walkabout West Cornwall: Awen.

Walkabout St Ives: Awen.

Walking Back to the Future: iSpy App Developers.

Welcome to Clay Cross: James Thornley.

Wild Wales App: Audio Trails Ltd.

Women's Walks: LSE Library.

WW1 Trails: App Builder.

Yorkshire Dales: Yorkshire Dales National Park Authority.

Appendix 2. Case Study Mapps & Web Links.

Walkabout St Ives:
https://www.awen.org.uk/content/walkabout-st-ives-0

Street Museum:
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Londinium:
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Exeter Time Trail:
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Historypin:
https://www.historypin.org/en/

Moor Stories:
http://moorstories.org.uk

Moor Stories – Case Study Material:
http://moorstories.org.uk/Search/Moor-Stories/

Placeify (Home)
https://www.placeify.co.uk

Placeify (ECFC)
https://www.placeify.co.uk/ECFC

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